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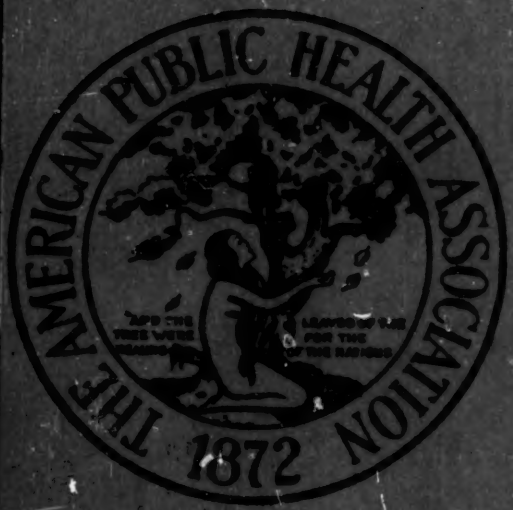

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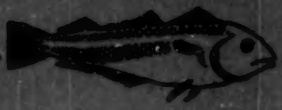
potency cod  liver oil vitamins in a more

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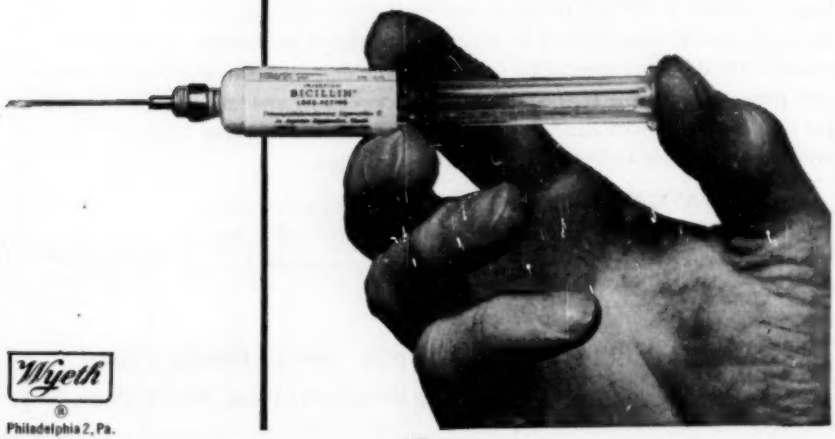

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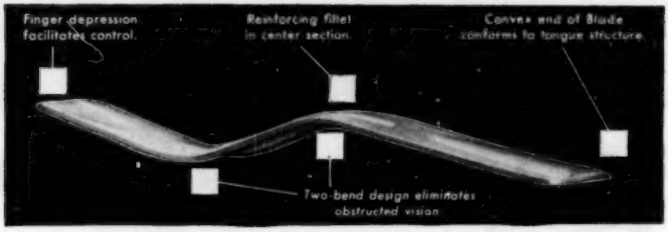
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References:

(1) Hopkins, J. G., et al: J. Invest. Dermat., 7, 239-253, 1946.

(2) Sullivan, M., and Fishbein, H. A.: J. Invest. Dermat., 10, 293-299, 1948.

(3) Peck, S. M., and Rosenfeld, H.: J. Invest. Dermat., 1, 237-265, 1938.

(4) Schwartz, L., et al: J.A.M.A., 132, 58-62, 1946.

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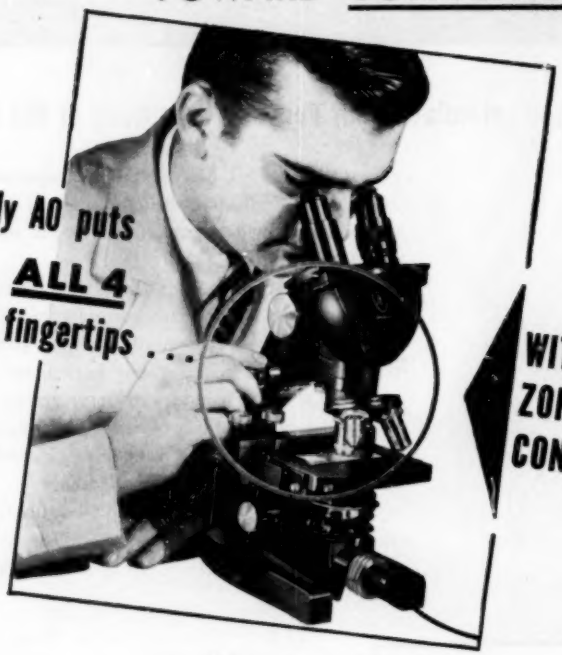

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1. Wilhelmj, C. M.; McDonough, J., and McCarthy, H. H.: Nutrition and Blood Pressure, Am. J. Digest. Dis. *20*:117 (May) 1953.
2. Mann, G. V., and Stare, F. J.: Nutritional Needs in Illness and Disease, J.A.M.A. *142*:409 (Feb. 11) 1950.
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4. Levine, V. E.: The Blood Pressure of the Eskimo, Federation Proc. *1*:121 (Mar. 16) 1942.

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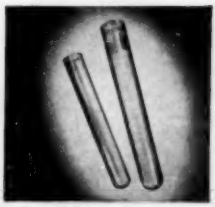

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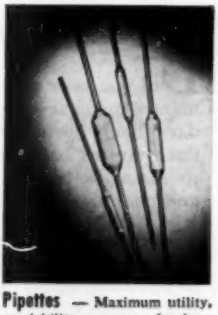

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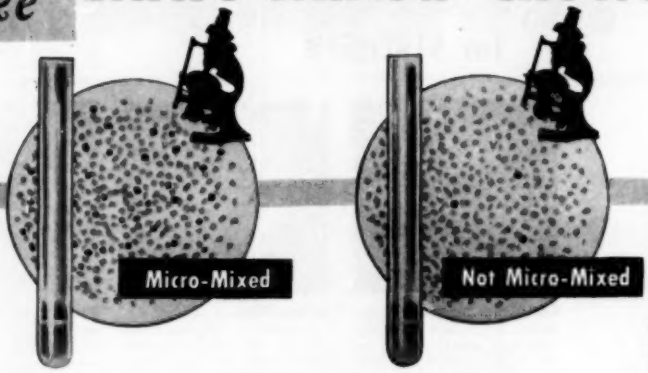

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How to Use Financial Data as a Basic Program Planning Tool

A Program Director's Guide

HARVEY L. SHAPIRO

Here are eight important ways by which budgets and periodic financial statements may benefit the administrator and the program he directs. They are not devices to plague professional personnel but are, instead, valued allies to program improvement, asserts the writer. What to look for and how to use that information effectively, is this paper's theme.

✣ Program budgets and related periodic financial reports can be an indispensable and basic part of realistic continuous program planning and direction if used effectively by the director and his staff.

There appears to be little information available in the literature to guide the professionally trained administrator, such as a director of a bureau of maternal and child health or crippled children, in his development of valid budget estimates for his special health program. Neither are there clear guides readily available to help him interpret the periodic statements of financial condition he receives in terms of their real meaning as related to his program. Properly understood and used, these reports can be an effective servant, lending a strong hand in changing program dreams into operating realities. When given fleeting attention, misunderstood, or ignored, the financing of program elements may become the "master of the house," dictating the nature and extent of professional services on an unplanned day-to-day basis, thus tending to make long-term constructive planning program difficult, if not impossible.

The director should recognize initially that budgets and periodic reports of program financial condition are but two of the many basic tools usable in planning for professional services in any categorical health program. Such financial reports as these assume meaning only to the extent that they can be interpreted easily and related directly

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by the director to his professional program objectives and operations. Their substance should not be allowed to become the controlling factor in effecting changes or modifications of existing programs. Neither should they be allowed to dictate the continuation of such existing programs without change.

It is fully evident that the agency's business or finance office has an important stake in program financing and financial management. Neither the program nor the finance offices alone can do an effective job of program budget and expenditure supervision without the fullest possible measure of cooperation, mutual interpretation, and understanding.

This presentation is directed toward: (1) exploring the values inherent in proper program use of budgets and periodic financial reports; (2) consideration of the inclusiveness of information contained in program budgets and financial reports; and (3) offering a suggested method which may be used by program directors in preparing for professional analysis of their budgets and related periodic financial reports. This paper does not attempt to cover principles and mechanics in the development and presentation of budgets, but it is predicated on the director's full understanding and realistic use of the entire budgeting process in planning for and administering his program.

Values of Budgets and Periodic Financial Reports

Periodic reports of financial condition as related to a given program and its budget can serve the program director effectively in at least eight important ways.

1. They serve as a measure of the accuracy of initial and subsequent estimates of the cost of each program element, as well as for the total program—Significant deviations from budget estimates become direct cues that the professional and administrative operation of affected program elements might well be examined. In this regard, such reports also serve as an effective warning barometer in terms of rates of expenditures as related to the program being carried on (Table 1).

On the exhibited statement of financial condition the item for "Appliances" shows only 20 per cent of total budgeted funds as being expended with no outstanding commitments at the halfway point in the budget period. With these data the program director might direct his inquiries along the following lines: "On what bases were the $5,000 originally budgeted?"; "What are the real reasons behind the relatively low current rate of expenditures which if projected at the same rate would result in final expenditure of only 40 per cent of the amount budgeted for appliances at the close of the full budget period?"; "What was the expenditure experience with regard to this budget item last year?"; "Is there a seasonal rise in rate of purchase during the last half of the budget period?" These questions might lead to more searching ones, the answers to which may serve as a sound base for effective program planning: "Has there been an imperceptible shift in program emphasis away from service to children with orthopedic handicaps?" "Are there adequate brace-making facilities in the area to meet the need?"; "Have all eligible children for whom appliances have been recommended been afforded them?"; "Are all staff members and other agencies concerned fully aware that the program is able to purchase such appliances as needed?"

2. Periodic reports serve as a tool in establishing and maintaining effective program operational and service levels with a minimum of unexpected or unplanned increases or decreases—On the exhibited statement of financial con-

Table 1—Statement of Financial Condition—As of Halfway Mark in Budget Period—Crippled Children's Program

Budget Item	Amount Budgeted	Amount Expended	Unexpended or Cash Balance	Amount Encumbered	Unencumbered Balance Available
Salaries of Staff	$40,000	$17,500	$22,500	$22,500	$ 0
Physicians' Fees	20,000	11,000	9,000	2,000	7,000
Clinic Physicians' Fees	10,000	3,500	6,500	1,500	5,000
Hospitalization	35,000	18,000	17,000	2,500	14,500
Convalescent and Foster Home Care	4,000	500	3,500	250	3,250
Appliances	5,000	1,000	4,000	0	4,000
Drugs and Biologicals	500	200	300	0	300
X-ray and Laboratory Work	2,500	1,000	1,500	500	1,000
Staff Training	3,000	0	3,000	0	3,000
Travel	2,500	2,500	0	300	300
Equipment and Supplies	1,000	800	200	100	100
Publications, etc.	500	0	500	250	250
CC Subtotal	124,000	56,000	68,000	29,900	38,100
Administrative Offices	5,000	4,500	500	500	0
Health Education	4,000	500	3,500	500	3,000
Vital Statistics	2,000	1,700	300	50	250
Local Health Offices	5,000	1,000	4,000	1,000	3,000
Public Health Nursing	10,000	1,000	9,000	0	9,000
Supporting Subtotal	26,000	8,700	17,300	2,050	15,250
Grand Total	150,000	64,700	85,300	31,950	53,350

dition, the items for Salaries of Staff, Clinic Physicians' Fees, and Publications show a very consistent rate of expenditures, plus commitments, as related to the budget. However, the items for Physicians' Fees and Hospitalization sound the warning bell that if the rate of expenditures, plus commitments, continues, funds for these items will be exhausted before the end of the budget period.

If these trends are noted early enough, plans can be made and placed in effect to avoid embarrassing lapses in program service continuity. This might be done by transfer of available funds from other budget items. If that is not feasible, the rate of commitments being made can be limited moderately. The longer the period covered by such limitation, in order to live within the program's financial means, the less drastic need the limitation be. It is equally desirable to avoid the "Grand Rush" to expend and commit available funds at the end of the budget period for previously unplanned purposes. Here, too, the budget items on the exhibit for Convalescent and Foster Home Care, Appliances, and Staff Training would offer sufficient advance notice for planning to use funds constructively in carrying out long-range program objectives.

3. They serve as an advance notice that consideration should be given to redistribution of funds to either existing or new working accounts—This redistribution should be based on previously developed plans. Such notice is generally of sufficient length to allow for implementing new or changed plans effectively. The same example cited for the preceding value of periodic financial

reports also has direct application in this instance. This value is premised, of course, on reasonably free transferability of funds from one working account to another within the total program budget or appropriation.

4. They also give advance notice to follow up on funds assigned to supportive programs and services—Such follow-up action might be in terms of full utilization by these supporting programs, or negotiating for fund reassignment to other supportive services, or even to the basic program if permitted. Sufficient time is generally allowed here, too, for effective and constructive fund use, if each periodic report is reviewed carefully in terms of expenditure and commitment trends.

In the supporting services portion of the exhibited financial statement, Public Health Nursing is shown as having expended only 10 per cent of the total amount allotted them at the halfway mark in the budget period. This would appear to warrant inquiry as to the nursing plans for the expenditure and commitment of the 90 per cent balance during the last half of the budget period. Such inquiry might result in making a portion of those uncommitted funds available either to the basic program or to other supportive programs as needed. This value is conditioned on the agency administration's policy on program fund use responsibility, i.e., whether fixed on the program director whose program funds are being used, or on the director of the supporting service concerned.

5. Periodic reports provide given points in time for joint professional and administrative evaluation of current program operations and trends — Agencies generally furnish each program director with periodic financial reports as related to his respective program; the frequency and periods covered varying from monthly to quarterly intervals. These reports may serve both as a motive and a tool for restudying plan and program operations and emphases. The receipt of these reports by the program director may provide regular points in time for thorough program examination as a base for continuous, realistic, and constructive program planning.

Receipt of the comprehensive periodic financial report for a health program might serve as a signal for an early meeting of the program director with his staff to "take a reading" to determine whether or not the program is proceeding in accord with earlier plans and whether new or unanticipated trends or stresses are developing in program content or movement which should be consciously planned or further considered. As a case in point, Convalescent and Foster Home Care in the table shows less than 20 per cent of its budgeted funds being used, while Hospitalization fund usage appears to exceed the anticipated rate at the budget period's halfway point. Such facts might raise questions such as these: "Are children remaining in hospitals after their need for acute care has been met?"; "Might some method be set up for periodic medical and social review of a sample of children under care to determine their readiness for discharge to their homes or to suitable convalescent or foster home facilities as needed?" Or, perhaps, more basically, "Should more emphasis be placed on finding or developing acceptable convalescent or foster home facilities in the area to which children who can benefit most might be referred?"

6. They become a device for determining identifiable costs of carrying out specified program operations and in helping assay professionally whether results being achieved justify such costs—Clinic Physicians' Fees in the table may be the major out-of-pocket cost to the program in conducting its regular clinics. "Are the results of such clinics

when evaluated professionally worth the cost?"; "Should their staff, content, or emphases be modified?"; "Should additional clinic consultants be retained?"; "Would it be professionally desirable and financially feasible to bring in outstanding clinicians to conduct demonstrations?"

Since "out-of-pocket" costs represent only those costs clearly identifiable for a given activity, it must be borne in mind that the total costs of any selected program operation, such as Clinic Services, always exceed the amount reflected in any single line item, except where performance budgeting and financial reporting (not discussed here) are in effect. Such costs as related to clinic operations might include in addition to Clinic Physicians' Fees and X-ray and Laboratory Work, Public Health Nursing, Staff, and Administrative Services, such as supplies, equipment, and travel in connection with clinic activities. These supportive items might or might not be shown clearly in the program budget or financial report, depending usually on fund sources, administrative responsibility, and the agency's financial reporting policies. In any case, total costs may still be estimated and professional determinations made as to whether results of given activities justify their related total costs.

7. Periodic reports serve as a tool to be used by the program director and his staff in determining whether current operation levels are satisfactory as reflected in part by rates of expenditures and commitments — These determinations should be made in terms of whether the service levels are meeting the needs in the area; whether they should be studied; or if the time has come to institute desirable program changes already planned.

In taking fullest advantage of this particular value, glib mathematical determinations that fund utilization rates are satisfactory, as compared to related budget items for particular activities and thus warrant no further professional attention, are fraught with danger. Use of half the available funds at the halfway point does not mean necessarily that current program operation levels are satisfactory or even that adequate planning has been undertaken. It might have been that the budget for Clinic Physicians' Fees (Table 1) which shows 50 per cent fund usage at the halfway point was based solely on historic expenditure experience. It is evident that the mere repetition of historic patterns, even in fund use, does not by itself warrant its perpetuation. Assurance, by some magic, that previous expenditure experience is or will be automatically and continually attuned to constantly changing needs in the community served is a delusion which has sapped the vitality of many programs. In many programs seasonal variations in activity are common. These variations are reflected ordinarily in rates of fund use and must be taken into account initially by determining the factors which influence seasonal variation and second by estimating the extent of such seasonal variation in financial terms. Thus, the desirability for continual professional program evaluation and planning, based on realistically determined community needs, related program priorities, and resources is self-evident, using financial data only as a fixed point of departure.

8. They serve as a measure of the extent to which plans for overcoming program unmet needs can be instituted —Effective program planning is based on a reasonably definite knowledge of program unmet needs in the area and their relative urgency and priority. The cost of program extension to meet such specified needs also should have been reasonably estimated, including the making available of needed facilities, personnel, equipment, and so forth.

For example, the cost of starting a

limited demonstration diagnostic clinic for children with suspected epilepsy might be estimated at $5,000. From potentially lapsing funds from the exhibited budget items for Convalescent and Foster Home Care, Appliances, Drugs and Biologicals, Staff Training, Health Education, and Public Health Nursing, an amount more than sufficient to meet this need might easily be gathered and budgeted. This, as noted earlier, is subject to agency restrictions on fund transferability. It is necessary, however, that there be assurance that funds would be available for a sufficient period of time to complete the intended demonstration.

Content of Budgets and Financial Reports

The Program Budget

To the extent that the following questions are answerable in the affirmative, the program budget can be of maximum value to the director and his staff in program planning.

1. Are total funds (available from all fund sources) allotted to the program shown?—This includes those fund portions which have been set aside for the basic program, as well as those portions preassigned to other supportive programs or activities.

2. Are those fund portions assigned to other or supporting activities or programs each clearly and separately identified on the program budget?—This includes those fund portions over which the program director may exercise no control with regard to commitment or expenditure. For example, supportive services of a maternal and child health program may include among others, the following: departmental administration; public health nursing, local health units, vital statistics, health education, and merit system support.

3. Is the lump sum balance of funds available and under the control of the program director budgeted into working accounts or budget items which are sufficiently broken down to be meaningful to the director and his staff in terms of specific operations?, and has sufficient money been distributed to these working accounts to maintain existing or contemplated program at consistent and desirable operating levels?—For example, it should be known whether the $35,000 budgeted in the exhibited statement for Hospitalization is sufficient to meet the need as based on previous expenditure experience for this item. It also should be known how many additional days of hospitalization could be purchased during the period if the amount budgeted for this item were to be increased by a specified amount in order to meet that program need. This type of carefully considered budgeting would assist the director in determining if previously agreed on new program plans or modifications in existing programs could be made effective during the budget period. In this regard, fullest use should be made of previous accounting or cost experience for each program element in assessing the cost of existing or modifying specified program elements.

The Financial Report

To the extent that the following questions are also answerable affirmatively, periodic statements of program financial condition can be of value to the program director and his staff in realistic program planning.

1. Are total expenditures and commitments reported in terms of whether all fund sources are shown and are those portions set aside for supporting services separately shown?

2. Are reports issued frequently enough so that a constant control may be maintained by the program director on the rate of fund usage for any of the program aspects?

This would be desirable if some correlation exists between the frequency of these reports and the predictability of program commitment and expenditure activity. Thus, the item for Salaries of Staff, which is usually highly predictable, might be reported effectively only once a quarter, while the status of Physicians' Fees and Hospitalization might be reported more frequently, due to its considerably greater variability and thus lower predictability. However, in order that each program financial status report shows the total picture, the frequency of financial report issuance should be based on effective program control of those significant budget items in which activity levels lend themselves least to forecasting. The availability, on request, of interim financial "readings" on single or selected budget items may serve to reduce the necessity for issuance of more frequent comprehensive financial reports. Whenever issued, all reports as a rule should show cumulative financial activity from beginning of the budget period, and for even greater effectiveness, the free uncommitted balance available for use during the remainder of the budget period.

3. Are the reports current or "fresh" in terms of short-time lag from the end of the accounting period to receipt of the report by the program director?

4. Are the items listed directly comparable to those on the original or currently effective budget, preferably showing budgeted amounts?

5. Is it known what the figures really reflect in terms of the following?:

A. Unexpended or Cash Balances as Shown in the Records of the Local Treasury or as Shown in the Agency's Finance Office—Although such cash balance information is of concern, it is generally meaningful to the program director only to the extent that commitments or obligations in transit (not yet recorded) are known and deducted from these cash balances. This same reasoning is applied to the maintenance of one's own personal checking account, but for some reason action on cash balance information constitutes a major hazard in program financial management.

B. Unencumbered or Uncommitted Fund Balances as Maintained in the Program or Agency Finance Office—This is generally the basic financial information needed in continuous and effective program planning! It is important to know the extent of the time lag between the making of a financial commitment (such as the issuance of an order for a given service) and its reflection in the most recent statement of unencumbered or uncommitted balances.

C. The Existence of an Adequate and Effective Encumbrance or Commitment System for the Program—When effective, this shows accurately the amount and distribution of financial commitments in transit, prior to their being reflected in unexpended or cash balances of the basic program and its supporting services.

D. Adequate Provision for Prompt Cancellation or Modification of Outstanding Commitments or Encumbrances as Changing Situations Require—This is a crucial point on which an otherwise adequate program of financial control may become impaled. For example, the moment a commitment is made for 30-day hospitalization of a child at a given rate, that total amount is literally set aside for this purpose and is considered no longer available for any other service. If for medical reasons, the child's hospitalization is indefinitely postponed, prompt cancellation of this specific commitment makes the funds immediately available for care of other children. Neglect of this simple principle may result in a financial report showing full fund utilization requiring restriction of further commit-

ments, where in reality adequate funds are available for maintenance or even extension of program services.

E. Knowledge of the Usual Method and Period Covered in Each Type of Encumbrance or Commitment as Contained in Each of the Budget and Financial Report Line Items—For example:

1. Salaries of the staff are generally encumbered for a full year. Thus, no unencumbered balance may be shown during the year, despite personnel turnover and vacancies, unless these encumbrances are modified promptly.

2. Clinic Physicians' Fees are generally encumbered on a "per clinic session" basis, or they may be encumbered on a quarterly basis if preferred.

3. Training of Staff is generally encumbered for the full course, including estimates for travel, tuition, and stipend as required.

4. Hospitalization and Physicians' Fees are encumbered generally on a case-by-case basis. This is done for appropriate periods of time and estimated cost.

Suggested Method in Preparing for Analysis of Periodic Financial Reports

With a clear understanding of the foregoing, as well as an appreciation of the many variable elements which might affect its interpretation, the following simple method is suggested for use in preparing for professional analysis of periodic financial reports in program terms.

Match the total of expenditures, plus encumbrances or commitments, against the prorated program budget as of any given point during the budget period. The following procedure may be adapted:

1. Determine the percentage of the budget period completed, as reflected by the closing accounting date shown on your most recent financial report. In a one-year budget period, completion of three, four, or six months would represent completion of 25 per cent, 33⅓ per cent, or 50 per cent, respectively.

2. Prorate each of the program budget items for the full budget period on the basis of the above determined percentage.

3. Match total expenditures, plus commitments shown on the most recent financial report, against the related, prorated budget items. This will show whether program funds, either by total or by budget line item, have been over or underexpended or committed from the rates originally planned.

4. Professionally determine the reasons for significant variations in expenditures and commitments to date, from your prorated budget items and totals.

5. Adjust program plans, operations, and emphases accordingly. In this regard, no premium is placed on program modification unless on the basis of professional evaluation such change is warranted. It is most desirable, however, that any significant deviation be professionally noted and satisfactorily explained prior to effecting program changes.

For example, if the total program budget were to show $100,000 available for a one-year budget period, the total expenditures, plus commitments, being only $30,000 at the end of six months (halfway mark), a clear indication for review of the reasons for commitment of only 30 per cent of available funds at the halfway point would be clearly evident.

Basically, this method requires only that percentage variations (plus or minus) of expenditures plus commitments from the prorated share of the appropriate budget item or items be determined. Such comparisons may be made for each budget line item as defined above and by meaningful groupings of budget line items in terms of program operations or by the total budget.

Upon completion of this preliminary analysis of expenses as it is related to the budget, with necessary allowances being made for reason of mechanical

variations discussed earlier, proper professional planning for effective program activity and emphases can be undertaken on at least a realistic financial base.

Conclusion

Financial data and reports are not devices of the devil to plague professional program personnel. Instead they are the director's allies in his effort to achieve program extension and improvement on a sound financial base.

The preparation, interpretation, and use of these valuable tools in the process of realistic health program planning and direction is of basic importance if program effectiveness is to be limited only by the professional vision, ingenuity, and resourcefulness of the program director and his staff.

Journal 25 Years Ago

Health and Mutual Benefits Groups, Then and Now

In January, 1929, the Journal printed two papers on mutual benefit associations and their relation to health which had been read before the Industrial Hygiene Section of the Association at the Fifty-seventh Annual Meeting the previous October. One was by the superintendent of the Employees Service Division of the Chicago Commonwealth Edison Company, the other by the president of the National Industrial Conference Board. The first paper lists three possible disadvantages of employee health services of mutual benefit associations against 15 advantages. There are also recipes for minimizing the possible disadvantages. A curiously modern sentence ends this article: "The more health insurance spreads throughout the nation, the greater our prosperity and the better off we shall all be."

In the discussion of the second paper "Mobilizing Mutual Benefit Associations for Health," the medical director of a Detroit pharmaceutical house said, "The average employee does not have sufficient income, and hence our efforts to help him in times of distress (through the mutual benefit associations) are really substitutes for low wages, which substitutes, however, are spent in a wise way."

Since 1929 was in the era when labor unions were still fighting for general acceptance, these mutual benefit associations might well have been the direct forebears of present-day labor union health services through the health and welfare funds included in wage and hour contracts and through other means. The Union Health Center of the International Ladies Garment Workers Union, which is probably the pioneer of such labor union services, had been organized in 1913. However, the great majority were organized in the thirties and later when labor unions no longer needed to justify their existence.

The ILGWU now has 15 health centers in as many industrial cities from New York to Los Angeles. According to a list prepared by the American Medical Association in 1952, there were 12 other health services of various labor unions throughout the country. Among the earliest of these is the Labor Health Institute of St. Louis (Teamsters Union). Among the more recently organized are the UAW-CIO Health Institute in Detroit (1945) and the Sidney Hillman Health Center (1951) of the Amalgamated Clothing Workers of America in New York City.

The two papers mentioned earlier in the January, 1929, Journal bear rereading today in the light of the growing health services of labor unions.

An Outline of Administrative Guides for the Community Cerebral Palsy Program

SAMUEL M. WISHIK, M.D., M.P.H., F.A.P.H.A.

"The chief bottleneck to more adequate care (of the cerebral palsied child) is not funds, but qualified personnel," concludes this writer. "At present recruitment is a greater problem than finding suitable training facilities."

✢ The Committee on Child Health of the American Public Health Association, with the help of many persons throughout the country, is preparing a guide for public health administrators on community programs for cerebral palsied children. Partly from that manuscript there has been selected for presentation here information on certain outstanding questions or problems that are frequently faced by the public health administrator. An attempt is made to answer some of the questions, or at least to present a point of view or composite of experiences. For brevity's sake, the material is organized in outline form.

Prevalence—As nearly as can be determined from existing studies, there are between 1.5 and 3.0 cerebral palsied persons of all ages per 1,000 total population. It is estimated that cerebral palsy results in one of every 170 live-born infants.

Definition—Cerebral palsy is a group of conditions resulting from brain disturbance and having in common a disorder of muscular control. Since the condition is caused by a number of different and often unrelated factors operative before birth, during birth, or after birth, there are many different clinical patterns and disease pictures. Arbitrarily, in this presentation, the term cerebral palsy is limited to conditions resulting from damage to the growing or developing brain and excludes disorders of muscular control which occur in adult life, such as hemiplegia from arteriosclerotic vascular disease.

The child with cerebral palsy almost always is a child with multiple handicaps (Table 1).

Table 1—Cerebral Palsied Children
Estimates of Proportion Having Other Disabilities than Neuromuscular Disturbance Alone

	Per cent
Speech defect	50–75
Mental retardation	About 50
Visual defect, other eye disturbances, or both	" 50
Convulsions	" 35
Hearing impairment	" 25

The frequency of multiple handicaps among cerebral palsied children immediately raises the question in the mind of the administrator concerning the advisability of giving care to cerebral palsied children together with other handicapped children or by themselves. In combined programs, common services can be utilized more efficiently for

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Table 2—Elements of Community Program for Children with Cerebral Palsy

Desirability of Separateness or Combination with Activities for Other Types of Handicapped Children

A. Should be combined
- Case finding
- Case register
- General health supervision
- Otologic and ophthalmologic consultation and care
- Furnishing braces
- Surgery
- Daytime education in regular classes
- Vocational aid
- Institutional care for mental retardation
- Long-term institutional care for severe physical disability
- Public education
- Prevention

B. Usually should be combined, but may be separate, depending on numbers and other factors
- Specialized medical supervision
- Physical therapy, occupational therapy, and speech therapy
- Dental care
- Special daytime education
- Education in residential school
- Recreation
- Counseling, social work, or psychotherapy to child or family

C. Should be separate
- Specialized diagnosis
- Research (may be combined)
- Professional training (may be combined)

different types of children. For example, both children with cerebral palsy and with poliomyelitis can be treated by the same physical therapist. The argument in favor of the specialized service is that the child with cerebral palsy presents problems of such complexity and special nature that a completely separate approach is necessary.

It is here suggested that neither method is appropriate for all the needs of the cerebral palsied child. The various services required by one or another cerebral palsied child are here classified according to efficiency and advantage of separate or combined organization (Table 2).

Classification—There are a number of different ways in which cerebral palsied persons have been classified. Each method is useful to the administrator or therapist for one or another purpose (Table 3).

Table 3—Methods of Classifying Cerebral Palsy

Medical
- Descriptive nature of neuromuscular disturbance
- Parts of body involved
- Associated handicaps
- Severity of involvement
- Anatomic site of brain lesion
- Degree of tonicity
- Etiology

Educational

The classification (Table 4) developed largely by Winthrop M. Phelps,

Table 4—Classification of Cerebral Palsy

Descriptive Characteristics of Neuromuscular Disturbance

Type	Characteristics	Percentage Distribution
Spastic	Tendency of muscles to contract when put under tension (stretch reflex)	45–65
Athetoid	Involuntary, incontrollable, irregular motions with varying degrees of muscle tone	25–35
Ataxic	Disturbance of balance and postural sense	5–15
Rigidity		
Tremor	Resistance to slow movement	5–15
Mixed types		

(Adapted from M. Peristein, M.D.)

M.D., is the most commonly used one and helps in differentiating needed therapies and educational placement, grouping associated disabilities, and identifying etiological factors.

Traditional nomenclature has grown up like Topsy. A diplegia can be a paraplegia or not. A hemiplegia (half) has as many limbs involved as a diplegia (twice). The Greek word "paraplegia" means "hemiplegia" (Table 5).

The terms require additional description to locate the affected limbs. A more logical terminology is offered in Table 6.

The classification shown in Table 7 is helpful in assessing community needs, estimating required types and numbers of professional personnel, and in placing children.

The following is of interest chiefly to the physical therapist and occupational therapist (Table 8).

Table 5—Classification of Cerebral Palsy

Parts of Body Involved in Neuromuscular Disturbance		
Para plegia	Legs only	(Spastic)
Di plegia	Legs mainly, arms slightly	(Spastic)
Quadri plegia	Legs more	(Spastic)
	Arms more	(Athetoid)
Hemi plegia	Arms more	(Spastic)
Tri plegia	Both legs, one arm	(Spastic)
Hemi plegia (double)	Arms more	(Spastic)
Mono plegia	(Rare)	(Spastic)

(Adapted from M. Perlstein, M.D.)

Table 6—Suggested Classification of Cerebral Palsy and Paralytic Conditions

Limbs Affected
Monoplegia
Right brachial
Left brachial
Right skelial *
Left skelial
Diplegia
Right
Left
Brachial
Skelial
Triplegia
Di-brachial and right skelial
Di-brachial and left skelial
Di-skelial and right brachial
Di-skelial and left brachial
Quadriplegia

* Derived from Greek word "Skelos," meaning leg

Table 8—Classification of Cerebral Palsy—Tonicity

Hypertonic or tension types
Normotonic types
Hypotonic or "atonic" types

Etiology, in so far as known, aids the administrator to plan preventive measures and education, as is shown in Table 9.

This classification not only helps in development of appropriate educational programs, but gives basis for introducing medical treatments into school settings (Table 10).

Table 7—Classification of Cerebral Palsy

Severity of Involvement and Response to Treatment

			Per cent
Mild	Ambulatory and self-helpful	Need little or no special treatment	20
Moderate	Difficult speech, impaired self-help or ambulation, or both	Need and can probably profit from treatment; usually outpatient care	50
Severe	Severely incapacitated and bedridden	Treatment may not rehabilitate; usually inpatient care	30

(Adapted from M. Perlstein, M.D.)

Table 9—Classification of Cerebral Palsy

Etiology	
Congenital malformation	
Perinatal anoxia	Prenatal (e.g., cord obstruction, abruptio placenta) Natal (e.g., breech, narcosis) Neonatal (e.g., atelectasis, tracheal obstruction)
Trauma, toxicity, or vascular disturbance	Natal (e.g., dystocia, toxemia, hemorrhage, precipitate, caesarean) Childhood accident
Specific toxicity or infection	(e.g., encephalitis, lead encephalopathy)

(Adapted from M. Perlstein, M.D.)

Table 11—Cerebral Palsy Services

Desirable Geographic Accessibility
A. Must be local to be of use
Case finding
General health supervision
Direct physical therapy, occupational therapy, speech therapy
Dental care
Recreation
Counseling, social work, or psychotherapy
Daytime education (regular or special)
Public education
Prevention
B. Preferably organized on a regional basis
Specialized diagnosis
Specialized medical supervision
Indirect (consultation or supervision or both) physical therapy, occupational therapy, speech therapy
Furnishing braces and other appliances
Surgery
Residential education
Vocational aid
Institutional care
Research
Professional training

Certain services, such as education, may be needed almost every day and therefore must be near the child's place of residence. Other services, such as a specialist's consultation, may be called upon infrequently and could therefore be obtained from a distance. The administrator must differentiate those services that can be organized regionally rather than locally and still be considered a reasonable part of the community program for handicapped children (Table 11).

Preplanning community surveys are costly and often not too productive. In the absence of a broad survey, considerable data can be derived from existing services and can constitute valuable indexes for further planning (Table 12).

Case finding is everybody's job. It rests upon sound general community services in health, education, and welfare and it requires orientation of professional workers in those programs to the needs and potentialities of cerebral palsied children. Over and beyond the "broadside" case finding, the administrator can aim at specific targets. In so far as we know the common precursors of brain damage, patients with

Table 10—Classification of Cerebral Palsy Educational Potential and Needs

Fully and readily educable	Normal mentality; minor disability	Usually can fit into regular school program
Fully but not readily educable	Normal mentality; moderate or severe physical, sensorial, or emotional disability	Need special education
Not fully educable	Mild or moderate mental retardation	Educational placement depends on physical needs
Not educable	Severe mental or physical disability, or both	Need custodial care

Table 12—Cerebral Palsy

Specific Indexes to Community Need for Strengthened Program

1. Occurrence of preventable types of cerebral palsy
2. Delay in diagnosis and reporting, especially before school age
3. Errors in diagnosis
4. Registered or known children who are not under care
5. Children under care, but with gaps in components of total rehabilitation
6. Unnecessarily restricted educational placement (home instruction, separate classes, etc.)
7. Unemployed cerebral palsied adults
8. Waiting lists for institutional care
9. Excessive caseloads in existing programs
10. Incomplete geographic coverage
11. Ineligibility of children because of race, economic status, or other reason
12. Poor coordination of existing resources
13. Substandard quality of existing services in respect to facilities or personnel

suspicious history can be labeled as "vulnerables" and be given more than routine follow-up attention. Table 13 is an example.

Cerebral palsied children carry their condition all their lives. As they grow, their needs for help in treatment and adjustment change. The general nature of their needs can be predicted from one age level to another and can be set

Table 13—Cerebral Palsy Case Finding

Intensive Follow Up of "Vulnerable" Infants

Maternal disease (e.g., German measles)
Erythroblastosis fetalis
Severe fetal stress during birth
Neonatal anoxia, convulsions, etc.
Small premature infants

up in a timetable. The following timetable for all cerebral palsied children helps in program development and in assessing the needs of groups of patients. It should be individualized for seeking continuity of effective supervision of each given child (Table 14).

Because of the multiple handicaps of the cerebral palsied child, assessment and treatment of each of his disabilities is often beclouded by disturbance of the usual avenues of communication, appraisal, or care. For example, response to physical therapy is lessened if the child does not hear or understand the therapist's instructions. Schooling is interrupted by frequent convulsions. Testing of intelligence by verbal or manual methods is difficult in the presence of speech or hand disturbance, respectively.

Modification of usual methods becomes necessary and each profession obtains aid from nontraditional quar-

Table 14—Cerebral Palsy

General Timetable of Care

At onset (birth or later)	Reasonably prompt recognition Intensive follow up of "vulnerable" infants Interpretation to family General health supervision (throughout)
Periodically	Professional team evaluation and recommendation of plan of care
Preschool years	Specialized health supervision (throughout) Parent counseling (throughout) Consideration of readiness for therapies (physical, occupational, speech) and nursery education
School years	Therapies (physical, occupational, speech) Education Psychological and social adjustment
Adolescence	Introduce vocational planning, counseling, and training Social and recreational outlets
Adulthood	Vocational placement

Figure 1—Cerebral Palsy Diagnostic Center

Role in Community Program

ters. Table 15 shows how testing the intelligence of the cerebral palsied child calls for longitudinal study, attention to cultural factors, observations by other professional and lay persons, and individualized considerations.

Table 15—Cerebral Palsy

Aids in Assessment of Intellectual Capacity

Serial retesting—growth more significant than single rating

Emphasis on physical, environmental, emotional, and social factors

Observation of child's response to training situations during treatments in home, clinic, and school

Comprehension of language and child's ability to devise means of communication.

(Adapted from Charles R. Strother)

The hub of the community cerebral palsy program is the multiprofessional diagnostic center which makes appraisal of disabilities and potentialities and recommends a plan or campaign of care, both immediate and long term. Because of the varied types and locations of treatment needed, the majority of patients seen at the center must be referred to community resources for care. A smaller portion of the patients, especially those living nearby, should be given on-going treatment as well as diagnosis to enable the center staff to keep their work on a sound basis (Figure 1).

Different auspices for the center are possible, depending on the types of resources in the region. Possible auspices are: a hospital (especially a teaching hospital), the public schools, a residential institution for handicapped children, or an independent (voluntary) agency. In general, the hospital is to be preferred in order to permit economical use of medical personnel and facilities (Table 16).

Table 16—Cerebral Palsy Diagnostic Center

Basic Professional Team

- Public health nurse
- Pediatrician
- Social worker
- Psychologist
- Orthopedist or physiatrist
- Physical therapist
- Speech therapist

Additional Professional Workers or Consultants

- Neurologist
- Psychiatrist
- Ophthalmologist
- Otologist
- Dentist
- Bracemaker
- Occupational therapist
- Vocational counselor
- Educator of exceptional children

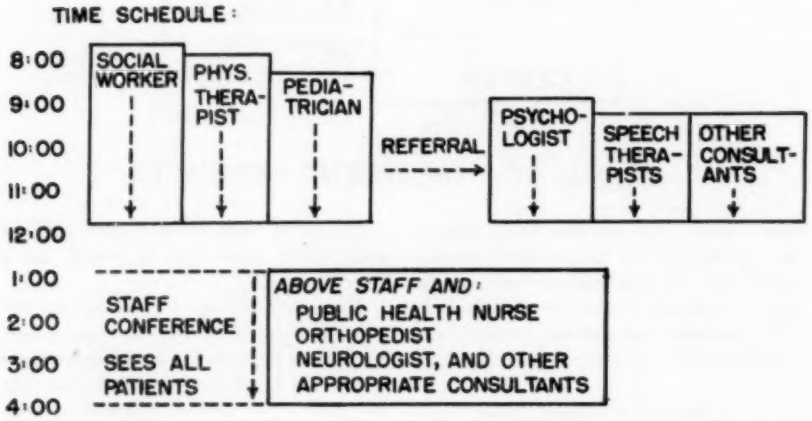
Figure 2—Cerebral Palsy Diagnostic Clinic

Example of Procedure

Ten patients seen per session—screened before admission by medical referral

Individual Interviews and Examinations

All patients seen by				Selected Patients seen by			
Pediatrician	10 Patients	in 3	Hours	Speech therapist	6 Patients	in 2	Hours
Social worker	10 "	" 4	"	Psychologist	5 "	" 2½	"
Physical therapist	10 "	" 3½	"				



Moving from a single clinician to a professional team requires coaching, training, signals, and ground rules. More often than not, the workers constitute the wrong kind of "interference" for each other, with a consequent poor score. The care with which a diagnostic clinic must be organized is suggested in Figure 2.

Medical and social factors play a large role in determining most appropriate educational placement. The objectives in educational placement are: As normal an educational setting as possible; grouping of children for special education and services rather than by diagnoses; maintenance of children's community and home ties; flexibility in change of educational placement; and medical supervision of health and medical services given in school.

While the diagnostic center is the hub of the community program, the most important single resource at some time for the majority of cerebral palsied children should be the day school. Some children will fit into regular classes and others may be grouped with other types of handicapped pupils. The last table gives criteria for admission to a special cerebral palsy unit when such a facility is found feasible to set up (Table 17).

Table 17—Special School Unit for Cerebral Palsy

Criteria for Admission of Children

1. Will the special services help improve his health or educational status? An estimate of prognosis should be made in terms of:
   - Ultimate outcome expected for the child
   - Immediate and long-term objectives for him
   - How much of his improvement may be expected to develop spontaneously and how much would depend on special training in the unit
   - Estimated timing of child's progress

2. Can the special unit handle the child? Indexes of this aspect of the problem include:
   - Transportation between home and school

Facilities and space in the classroom and school
The child's ability to handle himself personally
Availability of therapies needed by the child
Behavioral problems of the child
The child's educational adjustment

3. Will admission help the child or his family, or both, in the absence of actual improvement of his condition by:
Providing recreational and social outlets for the child
Freeing the family during school hours

The last group are limited objectives and must be recognized as such and plans should be made to deal with them constructively outside the special unit if possible.

A number of principles need emphasis, as follows:

Specialized services stand or fall on the strength and soundness of the general community resources. For most services needed by cerebral palsied children, greatest economy and effectiveness can be attained by caring for them together with other types of handicapped children. Possibility of improvement can easily be oversold; therefore, goals and objectives should be realistic.

Treatments given to each child should be carefully selected on the basis of his needs, readiness, and probability of response. Giving all services to all cerebral palsied children as early in their lives as possible is not necessarily beneficial to them or likely to enhance the community program.

The chief bottleneck to more adequate care is not funds, but qualified personnel. At present, recruitment is a greater problem than finding suitable training facilities. Interest must be engendered during basic professional training to expect enough individuals to move on to specialized graduate work.

Much research is needed to fill gaps in our information. Nevertheless, many cases of cerebral palsy can be prevented by more effective use of existing knowledge.

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The Nation's Handicapped Children

ARTHUR J. LESSER, M.D., F.A.P.H.A., and ELEANOR P. HUNT, Ph.D.

How many American children are handicapped and what are their chief disabilities? Though only approximate estimations are possible —in this prosperous day and in this socially-minded age—the statistical estimates given here suggest how formidable is the country's social burden.

✣ Historically the term "crippled children" has meant children with orthopedic handicaps. Today, we recognize that the lives of children may be crippled by a variety of other kinds of handicaps. The problem is becoming one of equal provision of comparable care for handicapped children, regardless of whether the impediments to their progress are orthopedic or of another nature.

One of the things we would like to know about the problem of handicapped children is its size. How many handicapped children are there in the United States? The most cautious and perhaps most realistic answer to this question is that nobody knows exactly, even within a measurable amount of error. The available fragments of information, while numerous, were not designed to fit together. Differences in basic definitions of handicaps, in observational methods, and in statistical procedures stand in the way of combining many of the reported facts. All of these and similar limitations are important to recognize, not so much to caution against faith in current estimates as to show clearly where we are in attacking the question at issue. Statistically speaking, we are in the initial planning stage, where the question is raised, and we are casting about for such pieces of information as may be at hand to assist us in planning a reasonably good way of getting a proper answer.

From this point of view, we have reviewed a number of surveys concerned with prevalence or incidence of those handicapping conditions of children which are of increasing concern. The particular conditions covered are: rheumatic fever and rheumatic heart disease, cerebral palsy, epilepsy, cleft palate and cleft lip, eye conditions, hearing impairments, speech defects, and orthopedic conditions. In each case, notwithstanding the weight of uncertainty, some estimate is advanced on prevalence in the United States in 1952 and what appears to be a reasonable figure for a prevalence rate. Child population estimates used are those reported by the Bureau of the Census.[9]

Rheumatic Fever—This condition is responsible for about 90 per cent of the defective hearts in childhood. In the mid-1940's, the Children's Bureau estimated that there were some 500,000 children under 18 suffering from rheumatic fever or its effects.[3] This estimate rested upon reports from the states where rheumatic fever demonstration programs were under way, upon probable needs in other states as seen by the bureau, and the size of the child population at that time. Today, the figure may be greater since the child population has greatly increased in size, and prevention of this disease has probably not kept step with this growth. In the light of size of the child population in 1952, children who have rheu-

matic fever or its aftereffects may now number 675,000 under 21 years of age.

These speculations are fairly consistent with results obtained in recent surveys of school-age children in which initial examination was made by a cardiologist or other physician especially interested in heart disease. The results of these surveys have recently been summarized [29] and lead to an estimate for school-age children at 604,500.

Cerebral Palsy—The number of children with cerebral palsy in the United States who received physician's services under crippled children's programs reached 22,397 in 1952, or 10 per cent of all crippled children who were served that entire year. While practically all states provide services for children with cerebral palsy, these programs are far from state-wide in many areas. Probably not more than one child in 10 with cerebral palsy is receiving care under these programs.

Recent studies [4, 24, 25, 28] on cerebral palsy have, on the whole, tended to confirm estimates proposed by Dr. Winthrop M. Phelps. The survey in New York State reached a birth incidence rate at 5.9 per 1,000 births, which can be interpreted as not significantly different from incidence implied in Dr. Phelps' estimates, four per 1,000 births.

Age-specific prevalence rates found in the New York study in Schenectady County, if assumed to be generally applicable, would suggest that about 512 children per 100,000 under 21, or somewhere in the neighborhood of 285,000 children under 21 in the United States in 1952 have cerebral palsy either from birth or as a result of subsequent brain damage. Some allowance is made here for the poor reporting of cases under five years of age. With an anticipated annual birth population at 3.8 million during the remaining years of the 1950's, nearly as many children will be born each year with congenital cerebral palsy as are now receiving physician's services in any one year under the crippled children's programs in the United States.

Epilepsy—About 1,000 children in the United States received physician's services under crippled children's programs in 1952 for this condition. Prevalence of epilepsy among children under 21 in the United States was estimated in 1945 at about 200,000 on the basis of the literature then current.[3] Recent experience of the Maryland State Health Department in their epilepsy program suggests a minimum incidence of two per 1,000 under 21, while more intensive study of one county led to an estimate of five accurately diagnosed cases of epilepsy per 1,000 children under 21.[2] The latter prevalence rate, if generally applicable, would mean that there are now about 275,000 children under 21 in the United States who have epilepsy.

Cleft Palate and Cleft Lip—Four per cent of all of the children who received physician's services under the state's crippled children's programs in 1952 were treated for cleft palate or cleft lip, or both. This group numbered about 9,500 children in 52 different states and increased 20 per cent in size in the biennium 1950–1952.

Data reported on official birth certificates place the incidence of these conditions among newborn at about 1.3 per 1,000 live births, or roughly one for any 770 births.[7, 11, 13, 30] Since supplemental items on the birth record are not always reported completely, this rate is probably conservative. With the an-

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nual number of births in the United States at approximately 3.8 million, this incidence at birth, if generally applicable, would mean that in the United States nearly 5,000 infants are born each year with this malformation. In Wisconsin about 52 per cent of the children with this type of handicap had cleft lip as well as cleft palate, 26 per cent had cleft palate alone, 22 per cent cleft lip alone.[26]

If we assume an incidence rate at birth of 1.3 per 1,000 live births has prevailed for some time and has general significance beyond the several states where surveys have been made, the number of children with cleft palate or cleft lip, or both, under 18 years of age in the United States would be in the neighborhood of 64,000 in 1952. More than one-third of these children, or 23,000, would be under five years of age, and perhaps 33,000 in the age group 5 to 14 years. These estimates of prevalence assume that mortality of infants and children with cleft palate or harelip is the same as among other children in these age groups.

Eye Conditions—The National Society for the Prevention of Blindness estimates 7.5 million school children in the United States are in need of eye care.[22] This estimate is consistent with the finding in the St. Louis study on vision testing methods, cosponsored by the National Society, the Division of Public Health of the State of Missouri, the Children's Bureau, and other organizations. In this study the prevalence rate of children with eye conditions requiring observation or treatment by an eye specialist was 27 per cent among first and sixth graders.[5]

Children with visual handicaps so serious as to require special educational help are estimated at 60,000.[3, 31] Facilities for this help were available to 8,000 of these partially seeing children during 1952–1953 in the public school system.[23, 31] In 1952, about 5,800 children under seven years of age, or one in 4,000, were blind; in the school-age group,[5-17] in the neighborhood of 6,600 were so handicapped, or one in 5,000.[31] Many of these children are in residential schools for the blind; a small number are in special classes in the public school system.

Hearing Loss—Available crude statistics on hearing loss have usually been reported on the basis of children whose hearing appears sufficiently impaired to warrant further study. Typical of such statistics are those of the Committee on Hard of Hearing Children of the American Hearing Society (1945), which indicated a prevalence rate among school children of about 5 per cent.[20] In 1952, at this prevalence rate, an estimated 1.3 million children, five to 14 years of age, in the United States were in need of further observation to determine accurately the extent of impairment and indications, if any, for treatment. Estimates of prevalence of handicapping hearing loss among children have been given in the neighborhood of 0.5–1.0 per cent of the total child population, or from about one-quarter to one-half a million children under 21 in the United States if applicable in 1952. This is probably a conservative estimate. Under a standardized screening program, with well qualified personnel, prevalence of major hearing defects has been found to be as high as 3.3 per cent of elementary school children in one of the southeastern states.[10] Major hearing defects included impairment below 15 db in any frequency between 250–8,000 cps, and a history or evidence of chronic pathological condition.

Speech Handicaps—About two million children or 5 per cent of those five to 20 years of age have speech disorders of such severity as to interfere with their educational progress and social and emotional development.[1, 15] Among this handicapped group 16 per

cent, approximately, have speech disorders associated with other handicapping conditions. Ten per cent are children with impaired hearing, 4 per cent are children who have cerebral palsy, and 2 per cent of these children have cleft palate. Stuttering handicaps about seven per 1,000 children in this age range and in 1952 the number of such children is estimated as 270,000. Over half of the children with speech disorders have functional articulatory defects.

Orthopedic—Estimates on prevalence of orthopedic handicaps among children vary widely, due in large part to type of inclusions, methods of examination, and type of observer.[6, 8, 16, 18, 21] If we assume a prevalence of 3.2 per cent for orthopedic defects, except foot defects, about one million children in the school age population (five to 17 years) would indicate the number with orthopedic defects or conditions of sufficient severity to justify referral to a physician for treatment. This estimate stems from the results of school health examinations of 83,019 children in 19 school systems in New York State, 1945–1946, and is intermediate among others derived on somewhat similar types of surveys.

All of these estimates taken together suggest that the burden of physical handicaps in childhood is formidable. To improve our knowledge of its dimensions, distribution, and composition we need continuing study. We also need greater uniformity of approach and procedures in different studies on the same conditions, as well as between studies on different conditions. Comparable and deliberate designs in studies to yield among other things age-specific estimates of prevalence and incidence will also facilitate the estimating process.

Economically, and in other ways, it is probably not feasible to plan a national sampling of the children in the United States. We can expect that studies on handicapping among children will be in restricted geographic areas and under various auspices. Among such separated studies, the likelihood of comparability to enable consolidation of findings for a broader base from which to generalize can be greatly increased by adopting standardized definitions and statistical procedures. Such measures are being used with success in statistical studies by the different states and localities on incidence of prematurity and on birth-weight-specific mortality.

It is to be hoped that the many different disciplines concerned with the problem of handicaps in childhood will set up some mechanism for development of suggested uniform statistical definitions and procedures for use in surveys and studies on handicapped children.

Another approach which can add to our knowledge of handicapped children is better initial planning for the younger age groups in studies on morbidity and chronic illness in the general population. Such studies usually are prepared to furnish age breakdown of the information collected, but the data for younger age groups may not be specifically designed with the needs of children in mind. Cooperative planning at the outset of these studies in respect to sampling and detailed observations could greatly broaden the usefulness of these studies through provision of information of greater specificity to workers in the field of child health.

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Russell Wilder Nutrition Fellowship

The National Vitamin Foundation has established a three-year $15,000 post-doctorate fellowship in the science of nutrition. The first of its type in this field, the fellowship has been named the Russell M. Wilder Fellowship in honor of Dr. Wilder, recently retired director of the National Institute of Arthritis and Metabolic Diseases of the National Institutes of Health.

Candidates for the fellowship must hold a doctor's degree in medicine, or in one of the basic sciences—biology, physiology, or chemistry—and they must apply in writing to the foundation for application forms. The latest date for mailing official application forms is March 15, 1954.

Further information and application forms from the National Vitamin Foundation, Inc., 15 E. 58th St., New York 22, N. Y.

Occupations and Cigarette Smoking as Factors in Lung Cancer

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This four-year study offers additional evidence tending to connect heavy cigarette smoking with cancer. In addition, it lists several occupations that seem to have some etiological relationship to the disease. They need further study, as it is suggested.

✣ The sharp increase in lung cancer mortality constitutes one of the most spectacular disease phenomena of the past two decades. In the United States the age-adjusted mortality rate for lung cancer climbed from 2.7 per 100,000 population in 1930 to 11.0 in 1948, a more than fourfold increase. In at least one state, California, pulmonary cancer now accounts for more deaths than does pulmonary tuberculosis, and among males aged 45–64 it causes 4 per cent of all deaths.

Attempts to explain this rising mortality as spurious, e.g., as due to improved diagnosis of the disease, do not stand up. The lung cancer death rate—which unfortunately is still our best approximation of incidence rate — has increased two and a half times more rapidly among men than among women. One can hardly presume that physicians have applied diagnostic improvements so much more completely to men than to women. Likewise, the increasing proportion of lung cancer found as a cause of death among autopsies supports the conclusion that we are dealing with a real increase in the disease.[1]

Environmental changes appear to offer the best explanation for the phenomenon. Previously published studies have implicated cigarette smoking [2-5] and certain occupations [6] — especially those involving exposure to radioactive [7] and chromate ores [8] and asbestos [9]—in the causation of lung cancer. However, the number of persons known to have such occupational exposures in the United States is relatively small.

The present investigation was undertaken four years ago: (1) to determine whether any additional occupations might be involved in lung cancer and thus deserve intensive investigation, and (2) to obtain data on the role of tobacco usage in lung cancer.

Methodological Considerations

Definitive study of whether an occupation or cigarette smoking is a causative factor in lung cancer requires that the incidence rate for the exposed group be determined. This rate is then compared with that of a control population, the most acceptable control being all the rest of the population from which the

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exposed group came. Assuming the same diagnostic and reporting standards for both groups, one may thus determine how the chance that a member of an exposed group will develop lung cancer compares with the chance that such a person would develop the disease if he were not a member of the exposed group. If the likelihood of developing lung cancer is substantially increased by being in the exposed group (e.g., a certain occupation) one may conclude that the exposure is a causative factor in the disease. The key to this analysis lies in determining comparative incidence rates for a suspect group and a control population.

But first it is necessary to identify suspect exposed groups. That was the aim of the present study. The importance of pin pointing these groups arises from the fact that incidence studies require assembling sizable populations and observing the occurrence of the disease in them—a large and expensive task. If, for example, data were obtained implicating occupations beyond those already known to be causative factors in lung cancer, one would be justified in assembling populations of the occupational groups and observing them for lung cancer incidence rates—a study which would develop more definite proof of the presence or absence of an etiological relationship.

Several methods of investigation have advanced our knowledge in this sphere. First, is clinical observation of association between a case or a few cases of lung cancer and some exposure, e.g., asbestos. One defect of this method is that such clinical observation depends largely on chance and often involves such small numbers of cases that the validity is questioned. Where made, of course, such observations are helpful.

Another common method of identifying suspect occupations in a highly fatal disease, such as lung cancer, is to note the frequency of the various occupations on death certificates where the disease appears as the cause of death. The frequencies of the occupations on such death certificates may then be compared with those on all death certificates for the general population. If certain occupations appear with much greater frequency on death certificates for lung cancer than on certificates where death is due to other causes, one may conclude that the occupation may be involved and should be intensively investigated. Important achievements may be credited to the use of this method. However, major difficulties with this use of death certificate data arise from the following circumstances: only one occupation may be recorded; while this is supposed to be the "usual occupation," it is often not correctly recorded and duration in the occupation is not recorded. All these circumstances tend to blur the identification of suspect occupations from death certificates.

The method selected in the present study was to determine the lifelong occupational and tobacco-usage history of lung cancer patients (and a control group) by actual interview with the patients. The work history included the number of years engaged, name of company, industry, a description of duties, and listing of products and hazardous materials known to the patient.

Data Collection

Patients observed during 1949–1952 in 11 California hospitals (three county general hospitals, five veteran or military, two university, and one private hospital) comprised the study group. An interviewer especially qualified in occupational analysis obtained the data from each patient in the cooperating hospitals whose condition permitted the interview. The session with each patient often lasted two hours or more, since many details about smoking were

obtained and the information about every occupation was highly detailed. A total of 518 patients who finally had histopathologically proved diagnoses of lung cancer were ultimately included in the analysis.

For every patient in the case series another patient admitted to the hospital about the same time—of the same age (within five years), sex, and race—for a condition other than cancer or a chest disease was chosen in a random manner as a matched "control." Two interviewers, one working in Northern California and one in Southern California hospitals, obtained the data from the lung cancer patient and control patients using the same schedule in identical manner. That interviewer bias did not enter into the determination of tobacco-usage history seems likely, among other reasons, because the results closely parallel those obtained in other investigations where such bias apparently was excluded,[4-5] and because the results for the two interviewers were very similar. It is difficult to conceive how interviewer bias might have affected the occupational data, since both lung cancer patients and control patients mentioned hundreds of occupations and none of these was suspected by the interviewers. Preliminary findings were kept from the interviewers until the end of the data collection.

Method of Analysis

Each record was reviewed by a physician, particularly with respect to the pathologic diagnosis. An industrial hygiene chemist completed the listing of materials usually involved in the occupations mentioned by the patients but not necessarily known to them. Thereafter, the data were coded and tabulations prepared.

Attempts to analyze the data concerning type of industry and exposure to materials already identified as toxic or carcinogenic did not prove fruitful. Hence the major analytical effort with respect to work history went into the data on occupation itself. This had been coded according to the Dictionary of Occupational Titles (2nd ed., 1949), prepared by the Division of Occupational Analysis, U. S. Employment Service, a code with 367 three-digit titles. Particular attention was devoted to the question of years of exposure because present knowledge of carcinogenesis due to environmental agents indicates that duration of exposure and a long latent period are critical factors.

Data on tobacco usage were analyzed so as to reveal the type and degree of smoking, as well as the fact of smoking itself.

Finally, an attempt was made to separate the effects of tobacco usage and occupations which appeared implicated.

Table 1—Age Distribution of Lung Cancer Patients and Controls

Age	Cases			Controls
	Adeno-carcinoma	Other Types of Carcinoma	Total	Total
Total	46	472	518	518
Under 40	3	22	25	26
40–49	6	56	62	59
50–59	19	194	213	213
60–69	14	154	168	169
70 and over	4	46	50	51

Table 2—Sex and Race Distribution of Lung Cancer Patients and Controls

Sex and Race	Cases			Controls
	Adeno-carcinoma	Other Types of Carcinoma	Total	Total
Total	46	472	518	518
Total male	42	451	493	493
White	41	420	461	461
Negro	..	20	20	20
Other	1	11	12	12
Total Female	4	21	25	25
White	3	15	18	18
Negro	1	3	4	4
Other	..	3	3	3

Findings on Smoking

Tables 1 and 2 reveal the distribution of the lung cancer patients according to their biological characteristics — age, sex, race, and the essential similarity of the matched control series in respect to these characteristics.

Tobacco usage by lung cancer patients and the control group is shown in Table 3. Here one may note that 484 (93 per cent) of the cases gave histories of having smoked cigarettes; whereas only 394 (76 per cent) of the controls gave a similar history. No such greater frequency of tobacco usage in other forms (pipe, cigar, chew, and snuff) occurs among the lung cancer patients when compared with the control group. In fact, 68 of the control group used tobacco in a form other than cigarettes exclusively; whereas only 15 of the lung cancer patients did so—relative frequencies which are not much

Table 3—Tobacco Usage During 20 Years Prior to Study Reported by Lung Cancer Patients and Controls

Manner of Using Tobacco	Cases			Controls
	Adeno-carcinoma	Other Types of Carcinoma	Total	Total
Total	46	472	518	518
Total not smoking cigarettes	6	28	34	124
No use of tobacco	4	15	19	56
Tobacco other than cigarettes, only	2	13	15	68
Total smoking cigarettes	40	444	484	394
Cigarettes, only	31	298	329	240
Cigarettes and other	9	146	155	154

Table 4—Amount of Cigarette Smoking During 20 Years Prior to Study Reported by Lung Cancer Patients and Controls

Packages of Cigarettes Smoked per Day	Cases		Controls	
	Number	Per cent	Number	Per cent
Total	518	100	518	100
None	34	7	124	24
< ½	19	4	50	10
½ —	71	14	105	20
1 —	304	59	199	38
2 or more	80	15	22	4
Not recorded	10	2	18	3

different for the nonusers of tobacco in the two series.

This suggestion of an effect by cigarettes only is consistent with other investigations in the field. Some support for the hypothesis that cigarette smoking affects the development of epithelial carcinoma of the lung more than adenocarcinoma may be noted. Six out of 46 (13 per cent) of the cases of adenocarcinoma did not smoke cigarettes; whereas only 28 out of 472 (6 per cent) of the patients with other types of carcinoma, described variously as squamous, epithelial, undifferentiated, did not smoke cigarettes.

One commonly used measure of the amount of exposure to cigarette smoking, the average number of packs smoked per day, appears in Table 4. Seventy-four per cent of all lung cancer patients reported smoking one or more packs of cigarettes on the average per day over the preceding 20 years, compared with a frequency of only 42 per cent among the controls. "Excessive cigarette smoking" (two or more packs per day) occurred almost four times as commonly among the case series as among the control group.

Other items which may indicate the amount of cigarette smoking include the age at which the individual began smoking, whether or not he smokes before breakfast, and whether or not he "inhales." Table 5 reveals that, by all

Table 5—Age of Beginning Cigarette Smoking, Smoking Habits, and "Cigarette Cough" Reported by Lung Cancer Patients and Controls

Cigarette Smoking Characteristics	Cases			Controls		
	Number	Per cent Based on Cigarette Smokers Only	Per cent Based on Total	Number	Per cent Based on Cigarette Smokers Only	Per cent Based on Total
Total	518		100	518		100
Total cigarette smokers	484	100	93	394	100	76
Began 15 years of age	166	34	32	116	29	22
Began 15-24	286	59	55	243	62	47
Began 25 years of age	32	7	6	35	9	7
"Inhale"	449	93	87	327	83	63
"Smoke before breakfast"	373	77	72	229	58	44
"Cigarette cough"	204	42	39	112	28	22

Table 6—Estimated Prevalence Rates * of Lung Cancer per 100,000 Males of Selected Ages and Various Cigarette Smoking Habits

	Number		Estimated Prevalence Rates Quantity Smoked Daily †			Relative Prevalence ‡	
	Lung Cancer	Control	Heavy **	All Quantities	None	Heavy	All Quantities
Patients aged 50–59 years							
1. Doll and Hill	276	275	94	42	7	13	6
2. Wynder and Graham	258	210	117	47	4	27	11
3. Sadowsky, Gilliam, and Cornfield	198	208	87	44	12	7	4
4. Present	213	213	102	46	6	17	7
Patients aged 60–69 years							
1. Doll and Hill	197	199	137	63	0	..	..
2. Wynder and Graham	187	160	138	70	5	29	15
3. Sadowsky, Gilliam, and Cornfield	76	71	44	71	5	9	4
4. Present	168	169	433	78	17	25	5

* Estimated according to the method of Cornfield.[11] Data for studies of Doll and Hill; Wynder and Graham; and Sadowsky, Gilliam, and Cornfield from the latter paper.[12]

† Quantity smoked daily, except for present study, is all forms of smoking expressed as cigarettes, with pipes and cigars converted to their equivalents in cigarettes as follows: 1. Doll and Hill—1 oz. of tobacco a week = 4 cigarettes a day; 2. Wynder and Graham—1 cigar = 5 cigarettes, 1 pipeful = 2½ cigarettes; and 3. Sadowsky, Gilliam, and Cornfield—1 cigar = 10 cigarettes, 1 oz. pipe tobacco = 20 cigarettes. 4. For present study, quantity smoked daily includes only cigarette smoking.

‡ Relative prevalence is the ratio: Heavy—rate among heavy smokers/rate among nonsmokers; all quantities—rate among smokers/rate among nonsmokers.

** Heavy smoking is defined as the following number of cigarettes or equivalents of cigarettes per day:—1. Doll and Hill—50 or more; 2. Wynder and Graham—35 or more; 3. Sadowsky, Gilliam, and Cornfield—41 or more; and 4. present study—40 or more.

of these criteria, the lung cancer patients smoked cigarettes to a greater extent than did the control group. Also, approximately two-fifths of the lung cancer patients stated that they had had a "cigarette cough" usually antedating the onset of their illness by many years; 120 said that they had had a cough for five years or more. The frequency of such "cigarette cough" was only about one-half as great among the control group and only 39 of the control patients indicated that their cough had lasted five years or more.

Significance of Findings on Cigarette Smoking

The data clearly show cigarette smoking to be more frequent and intense among lung cancer patients than among the control group. Our data parallel that of other recent, well controlled studies; all indicate a positive correlation between cigarette smoking and lung cancer, a correlation which increases steadily with the amount of cigarette smoking. One can hardly escape the conclusion of Doll and Hill [4] that "smoking is a factor and an important factor in the production of carcinoma of the lung," and the more recent conclusion of Doll,[10] "The results amount, I believe, to proof that smoking is a cause of bronchial carcinoma."

The cigarette smoker or prospective cigarette smoker may wish to know how much his chances of developing lung cancer are increased by such smoking. Acknowledging that a correlation exists, one may still inquire how many times does cigarette smoking increase the

likelihood of lung cancer? Further, what is that likelihood in absolute terms? To answer these questions definitely would require that records of cigarette smoking for large numbers of persons in the lung cancer age be assembled. These persons would then be placed in categories with respect to cigarette smoking, e.g., nonsmokers, moderate smokers, and heavy smokers. Finally they would be observed for a sufficient length of time to determine the rate of lung cancer among the various categories of cigarette smokers and the nonsmokers. (Such studies are now under way.)

However, statistical devices have been developed for data such as those in the present investigation which, if one is willing to make certain assumptions, yield an answer to the question, how many times does cigarette smoking increase the likelihood of lung cancer? Application of Cornfield's formula [11, 12] to the data from four studies, including the present one (Table 6), indicates that for men aged 50–59 the prevalence of lung cancer is from four to 11 times as great among smokers as among nonsmokers, and from seven to 27 times as great among heavy smokers as among nonsmokers. Similar ratios were found for the 60–69 age group. This formula involves the assumption that in so far as smoking history is concerned, the patients are a representative sample of all lung cancer cases and the controls are a representative sample of all other persons in the general population.

Findings on Occupations

As noted earlier, the records for lung cancer patient and controls showed all

Table 7—Twenty Per cent Sample from Complete List of Occupational Groups [1] in Which There Were at Least 5 Cases or 5 Controls Employed for 5 Years or More

	Occupation	Persons Employed in Occupation at Least 5 Years	
		Cases	Controls
006	Authors, editors, and reporters	7	9
088	Ship captains, mates, pilots, and engineers	8	8
105	Clerks, general office	2	8
155	Canvassers and solicitors	3	11
180	Salesmen to consumers	7	4
227	Waiters and waitresses, except private family	14	10
266	Policemen and detectives, public service	6	3
307	Animal and livestock farmers	6	5
317	Farm hands, animal and livestock	10	10
433	General woodworking occupations, not elsewhere classified	8	7
516	Painters, except construction and maintenance	3	6
524	Brick and stonemasons and tile setters	5	1
532	Construction occupations, not elsewhere classified	45	25
542	Locomotive firemen	3	6
560	Attendants, filling stations and parking lots	10	9
583	Mechanics and repairmen, not elsewhere classified	15	16

Note: Sample randomly selected from the 81 occupation groups which met the stated frequency-duration requirements (at least 5 cases or 5 controls with 5 years or more employment). Occupations classified according to 3-digit categories in the Dictionary of Occupational Titles (2nd ed.). Washington, D. C.: U. S. Employment Service, 1949.

Table 8—Occupation Groups * in Which the Frequency of 5 Year Employment Among Cases Was at Least Twice as Great as Among Controls

	Occupation	Persons Employed in Occupation at Least 5 Years	
		Cases	Controls
016	Engineers, civil	5	1
138	Stock clerks	7	3
266	Policemen and detectives, public service	6	3
430	Lumbermen, raftsmen, and wood choppers	11	5
478	Machine shop and related occupations, not elsewhere classified	8	3
485	Welders and flame cutters	10	1
520	Occupations in production of petroleum	5	2
523	Construction machinery operators, not elsewhere classified	7	3
524	Brick and stonemasons and tile setters	5	1
538	Brakemen, railroad	10	5
570	Firemen, other than process firemen	11	2
573	Cranemen, derrickmen, hoistmen, and shovelmen	15	6
575	Drillers, extraction of minerals and construction	7	2

* Occupations classified according to the Dictionary of Occupational Titles (2nd ed.). Washington, D. C.: U. S. Employment Service, 1949. Includes only occupations in which there were at least 5 cases with 5 years or more of employment.

occupations followed and their durations in years. A listing was prepared of the occupations pursued by at least five patients or controls for five years or more. This listing revealed 81 occupations in this arbitrary frequency-and-duration category.

Table 7 presents a random sample of these occupations and the number of patients and controls who at some time during their work history had been engaged in them for five years or more. It will be noted that among the 518 lung cancer patients seven had worked as authors, editors, or reporters (occupation) for five years or more, and among the 518 controls, nine had been similarly engaged. Relative frequencies of occupation would appear to have the same logical significance as such frequencies of cigarette smoking. The latter is, of course, much more common among both case and control groups than is any single occupation. Hence, the numbers pertaining to any one occupation would be less impressive than in the case of cigarette smoking. However, the frequency with which the lung cancer patients had pursued certain occupations was substantially greater than the frequency with which control patients had pursued these same occupations.

The occupations for which the frequency among cases was at least twice as great as among controls, using the same frequency-duration category as before, appear in Table 8. Such a tabulation, of course, shows the occupations classified according to an arbitrary code which was not devised to reflect common occupational exposures that might be responsible for lung cancer. Further analysis therefore included the detailed examination of records of individual cases and controls and regrouping of occupations according to possible common exposures. For ex-

ample, one occupational group, number 530 (plumbers, gas fitters, and steam fitters) showed 16 cases and 10 controls with a five-year employment history. Examination of these 26 individual records revealed that substantially all the difference between case and control series was due to the steam fitters who had a heavy exposure to asbestos. It was also noted that other types of work involving asbestos occurred more frequently in the employment history of cases than among the employment history of controls. Thus, a new category, including steam fitters, asbestos workers, and boilermakers—all involving exposure to asbestos—was found to occur 10 times among the cases and only one time among the controls.

Table 9 presents the data for occupations grouped according to possibly significant exposures. Although numbers in each of the categories are small, the differences between cases and controls appear to implicate the occupations listed. It is of interest to note that several of those with the most striking differences involve exposure to metallic particles and fumes and products of metallic combustion. This observation tends to corroborate the suggestion of Wynder and Graham [13] that "hot metal" occupations may be involved in lung cancer.

In recent data of Doll [10] the only occupation with an important excess in the cancer group was that directly concerned with the production of gas. Little or no support was found indicating that other occupations suffer special risks. However, Doll's study was based upon experience in England where the employment pattern differs from that in the United States, especially California. Also, Doll used an occupation code of only 76 categories which may have been too coarse to reveal the differences found in the present investigation where a code of 367 categories was used and analysis carried to subgroupings of these.

It may be noted that 77 persons with lung cancer had an exposure of more than five years to suspect occupations (unduplicated count in seven occupation groups) according to the data in Table 9. This number represents a not insignificant proportion of the total (518) lung cancer patients in the entire study.

A further question upon which the present data might be expected to throw some light is the extent to which cigarette smoking and occupations operate

Table 9—Cases and Controls Employed for at Least 5 Years in Selected Occupation Groups *

Occupation	Persons Employed in Occupation at Least 5 Years	
	Cases	Controls
1. Welders and sheet metal workers doing welding	14	2
2. Steam fitters, boilermakers, and asbestos workers	10	1
3. Electric bridge crane operators—metal industry	5	1
4. Occupations in the extraction of lead, zinc, and copper ore	9	3
5. Marine engineers, firemen, oilers, and wipers	12	6
6. Construction and maintenance painters	22	12
7. Cooks, commercial (excluding cannery cooks)	35	21

* Occupation groups based on regrouping according to common occupational exposures after detailed examination of records.

Table 10—Example of Adjustment for Smoking Applied to Welders and Sheet Metal Workers Doing Welding

	Packages of Cigarettes Smoked per Day						
	None	<½	½ —	1 —	2 or more	Not recorded	Total
All cases and controls, male *							
1. Cases	22	16	69	296	80	10	493
2. Controls	110	45	105	193	22	18	493
3. Total	132	61	174	489	102	28	986
4. Proportion of cases among total cases and controls	0.167	0.263	0.396	0.605	0.783	0.357	
Welders and sheet metal workers doing welding, male							
5. Cases	0	0	2	11	1	0	14
6. Controls	1	0	0	1	0	0	2
7. Total	1	0	2	12	1	0	16
8. Expected number of welder cases †	0.167	0.0	0.792	7.260	0.783	0.0	9.002

Expected proportion of cases among welders $= \frac{9.002}{16} = 0.563$

Observed proportion of cases among welders $= \frac{14}{16} = 0.875$

Ninety-five per cent confidence limits ‡ for the proportion $\frac{14}{16} = (0.617, 0.984)$—statistically significant at 95 per cent level.

* Females excluded from total group, since only males are included in groups to which test was applied.

† Obtained by applying the proportion of cases among total cases and controls in each smoking category to the number of welders in that smoking category [line No. 4 × line No. 7].

‡ Hald, A. Statistical Tables and Formulas. New York: John Wiley. 1953.

Note: This test also was applied to all other occupation groups shown in Table 9. The group "steam fitters, boilermakers, asbestos workers" was on the borderline of statistical significance at the 95 per cent level. None of the other groups met the 95 per cent level of statistical significance.

as separate factors in lung cancer. For example, both cigarette smoking and welding appear to be related to the disease, but do welders get lung cancer more frequently merely because as a group they are heavy cigarette smokers? Although data from the present study involve small numbers for many of the occupations, analysis does indicate that welding as an occupation operates as a factor distinct from cigarette smoking in relation to lung cancer (Table 10). The group of steam fitters, boilermakers, and asbestos workers lies on the borderline of statistical significance when the effect of cigarette smoking is controlled. In the other occupational groups the numbers are such that the differences might arise from chance variation more than five times in a hundred.

However, all the occupations listed in Table 9 deserve intensive study to determine their precise relationship to lung cancer. One important step is to assemble populations of individuals employed in these occupations, and with varied smoking histories, in order to observe their lung cancer incidence rates. These rates may then be compared with the rate for the corresponding age-sex group in the general population. One may thus determine

how being in a particular occupational group affects the chances of developing lung cancer and likewise how cigarette smoking modifies these chances.

Conclusion

The data in this study constitute still another link in the chain of evidence connecting lung cancer with cigarette smoking, evidence which the New England Journal of Medicine notes to be "so strong as to be considered proof within the everyday meaning of the word." [14] It is time for those concerned with health education and with the ethics of advertising, at least in health and medical journals, to take note. Further investigation should seek the exact component of cigarette smoke—tar, arsenic, or other—which is responsible.

The data also suggest that several occupations (Table 9), in addition to those previously identified as having an etiological relationship, may be involved in the development of lung cancer. These occupations should now be intensively studied to determine to what extent persons engaged in them suffer a special risk of lung cancer. Thereafter, if an etiological relationship is clearly established, the precise exposure and mechanism responsible should be identified in order that protective measures may be introduced.

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Journal 25 Years Ago

ADDENDUM to the January, 1954 "25 Years Ago." In addition to the articles on the common cold mentioned last month, the 1929 Journal (p. 449) describes an eight-page booklet "That Mean Cold," by present-day associate editor of the Journal, Raymond S. Patterson. It was reportedly his first production as director of health education for the John Hancock Mutual Life Insurance Company, the January issue (p. 94) having reported his appointment as director of health education, Life Conservation Service of that company. Dr. Patterson had already been the author of A.J.P.H.'s "Annotated Public Health Bibliography" for several years, it having first appeared under his by-line in March, 1926.

Rabies in Bats in Florida

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Only a health worker with a spectacularly single-tracked mind is likely to find little of interest in the unusual experiences recounted in this paper and its companion discussion.

✣ Animals of various species are submitted to public health laboratories for examination for rabies. A bat received on June 24, 1953, by the Tampa Regional Laboratory of the Florida State Board of Health was handled routinely by one of us. The observation of numerous typical Negri inclusion bodies was the beginning of the study reported here.

The history of the bat in question was as follows: In broad daylight, about 10:30 a.m. of the preceding day, a seven-year-old son of a ranch employee was searching at the edge of shrubbery for a lost ball. Suddenly a bat flew out and attacked him, biting him in the upper pectoral region and remaining firmly attached. The child ran to his mother who knocked the bat to the ground where it was killed by the boy's father. A series of discrete bleeding puncture wounds resulted. The owner of the ranch, knowing of vampire bat rabies in Mexico, insisted that the bat be examined. Accordingly, it was taken to Dr. C. D. Hopkins, epidemiologist, Hillsborough County Health Department, and through him was submitted to the Tampa Regional Laboratory for examination. The identification of Negri bodies was confirmed and the remaining portion of the brain was sent to the Jacksonville Laboratory for mouse inoculation. After an incubation period of 14 days, the five mice injected died with clinical symptoms of rabies. Smears of the mice brains showed typical Negri bodies. One mouse brain was sent to the Virus and Rickettsial Laboratory, Public Health Service, Communicable Disease Center, Montgomery, Ala. There, the infection was established as due to rabies, with the etiological agent indistinguishable from rabies street virus by animal inoculation, complement-fixation, and serum neutralization tests.

The carcass of the bat was submitted to Dr. H. B. Sherman, professor of biology, University of Florida, Gainesville, for identification. He reported that it was a lactating female Florida yellow bat (Dasypterus floridanus), a species heretofore considered relatively rare. The specimen was retained as a part of Professor Sherman's collection of bats.

The boy who was bitten by the bat had a severe illness with a sudden onset 28 hours after the bat bite. The early symptoms of nausea and vomiting were rapidly followed by severe shock. Stools were loose and contained much blood. The temperature reached 102° four hours after onset. The boy was admitted to hospital promptly and his condition caused grave concern to the medical attendants. The several laboratory tests gave findings within normal limits. Intravenous glucose and saline were given. Symptoms began to subside after about six hours of illness and the boy was well following a night's sleep. Rabies immunization was started thereafter and his subsequent history was uneventful. This unexplained and unusual illness is mentioned since C. C.

Sanborn, curator of mammals, Chicago Natural History Museum, called to our attention a rather comparable episode in a mammalogist who had been bitten when examining bats.[1] The incubation period was longer, at least six days. There was severe headache, nausea, and fever and intravenous fluids were required. The symptoms subsided after four days in the hospital. The mammalogist commented, "It is impossible to be certain that this infection came as the result of the bat bites but there was no other apparent source."

On confirmation of the diagnosis of rabies in bats the Florida State Board of Health undertook a survey to determine the possible prevalence of rabies in bats. With the cooperation of the Fresh Water Fish and Game officials, bats on the wing were shot at twilight. Later, the cooperation of sportsmen in gun clubs was enlisted and with their help 223 bats were shot, collected, and submitted for examination. This procedure was very effective in July, August, and early September; thereafter with heavy rainfall and earlier twilight similar efforts have been unproductive. The bats which were shot came from the vicinity of the ranch in central Florida where the boy was bitten and in an expanding radius up to 35 miles from that point. In addition to the above, a group of colony bats was collected and submitted by Dr. John Wood, biologist, Johns Hopkins University, stationed at the Public Health Service Field Station, Thomasville, Ga. These colony bats were obtained some 300 miles from the nearest proved infected bat.

All bats were first examined microscopically for evidence of rabies. Brains were removed and impression smears prepared using half of the tiny brain. The remaining portion was reserved for mouse inoculation. Five mice were injected with specimens containing any inclusion bodies; for others, three mice per specimen were used. The preserved bat bodies were sent for identification to either Professor Sherman, University of Florida, or Mr. Sanborn of the Chicago Natural History Museum.

The species and numbers of bats collected for examination are given in Table 1. Of the 208 apparently normal noncolonial bats, six were found positive for rabies. All of these were shot in central Florida, and four of the six positives were among the 85 bats taken on or near the ranch where the boy was bitten. There was one positive among 111 shot 30 miles distant and another in 26 from an area 25 miles distant. The noncolonial free living bats were of three species and included 138 Florida yellow bats of which five were positive, 61 Seminoles with one positive, and nine red bats, all negative. Including the bat that bit the boy, six Florida yellow bats have been proved infected with rabies. Almost all of the colony bats were obtained while the bats were roosting in caves or old buildings and they were of five species. Microscopically all were negative for rabies and the mouse inoculation tests were negative, also.

Of the total of seven confirmed positive findings, six in the initial microscopic examination revealed inclusions considered typical Negri bodies. In one, atypical inclusions only were found but of such nature that the slide was considered negative for rabies by the Virus and Rickettsial Laboratory, Communicable Disease Center. The mice inoculated with this specimen died

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Mr. Venters is chief and Mr. Hoffert is bacteriologist, Tampa Regional Public Health Laboratory, State Board of Health, Tampa, Fla.; Dr. Scatterday is public health veterinarian, Bureau of Preventable Diseases, and Dr. Hardy is director, Bureau of Laboratories, State Board of Health, Jacksonville, Fla. This paper was presented before a Joint Session of the Epidemiology and Laboratory Sections of the American Public Health Association at the Eighty-first Annual Meeting in New York, N. Y., November 10, 1953.

Table 1—The Prevalence of Rabies in Apparently Normal Bats of Varying Species Collected for Examination in Two Areas of Florida in 1953

Species of Bat	Central Florida		West Florida *	
	Examined	Positive for Rabies	Examined	Positive for Rabies
Noncolonial				
Yellow (Dasypterus floridanus)	138	5	0	0
Seminole (Lasiurus seminola)	61	1	0	0
Red (Lasiurus borealis)	9	0	0	0
Colonial				
Little brown (Myotis austroriparius)	0	0	129	0
Freetail (Tadarida cynocephala)	29	0	2	0
Twilight (Nycticeius humeralis)	11	0	0	0
Georgian (Pipistrellus subflavus)	3	0	1	0
Big brown (Eptesecus fuscus osceola)	1	0	0	0
Total	252	6	132	0

* In part from Thomas County, Ga.

on the 12th, 13th, and 15th days; the smears revealed typical Negri bodies and the second passage mouse brain was reported as positive for rabies virus by the Virus and Rickettsial Laboratory. One specimen had quite suspicious inclusions but with some atypical characteristics; morphologically it was uncertain whether these were or were not Negri bodies. The inoculated mice remained normal up to 60 days. The brain smears of five other bats had "atypical inclusions"; by mouse inoculation none of these were found to contain rabies virus. Thus, bat brains negative for Negri bodies may be positive for rabies by mouse inoculation and bat brains negative for rabies by mouse inoculation may have brain inclusion bodies which cannot be securely differentiated from Negri bodies by microscopic examination alone.

The mice inoculated with the bat brain material and found positive for rabies died from the 10th to the 19th days, but most commonly on the 14th and 15th days. The incubation periods were in line with those in mice inoculated with infected brain tissue of the larger mammals ordinarily being tested for rabies.

Material still under study derived from another Florida yellow bat has produced symptoms simulating rabies but without Negri body formation. The original bat brain was microscopically negative. One of the three mice inoculated died on the fourteenth day. Six mice were inoculated from the brain of this mouse. These died on the 13th, 14th, 18th, (two) and 21st (two) days. In the first through the fifth passage the symptoms in mice were uniform and characteristic of rabies with early tremors, roughing of fur, humped back, and progressive paralysis beginning in the hind legs and finally prostration and death in two to six days. In none of these mice were inclusion bodies found microscopically. Pawan has called attention to similar instances both in bats and in animals inoculated from bats.[2, 3]

Contrary to prevailing opinion of biologists as to the rarity of the yellow bat, it was the species most commonly found during the summer months in the central area of Florida studied. Its habitat is stated to be the Gulf area,

extending into South Carolina. A slightly larger, but otherwise indistinguishable species, the eastern yellow bat (Dasypterus intermedius) is found in Texas and Mexico. Another species, the western yellow bat (Dasypterus ega xanthinus), lives in northwestern Mexico and extreme Southern California. The Seminole bat is found in the coastal area from South Carolina to Louisiana. These free-living bats do not congregate in colonies, but during the day hang from shrubs or Spanish moss. They fly chiefly at dusk and in so far as is known feed entirely on flying insects. They attack man only in most unusual circumstances. Possibly, the boy who was bitten came too near the young of the lactating female. The action of the bat may have been due to the protective maternal instinct rather than to the abnormal action of a rabid mammal.

As of the present time, one may still question whether these observations represent a localized and unique situation or a common but unrecognized one. Present knowledge permits one to speculate only as to the probable source and modes of spread of rabies infection in the insect feeding, noncolonial (free-living) bats. Pawan [2] directs attention to the occasional occurrence of rabies in fruit eating bats in areas inhabited by vampires. Interspecies spread through the bites of vampires is proposed as the probable explanation. If bats migrate, and there is little information as to the habits of free-living bats in this regard, this could be the explanation of the locally observed infections. The high prevalence in bats in the area of the ranch (a total of five infections in 86 studied) indicates either a ready spread or a prolonged infection. The findings also raise the question as to the role of bats as a reservoir of the heretofore unexplained sporadic rabies in wildlife. Though infected bats may be important in this way, it does seem clear that the direct exposure of human beings to rabies by bats in Florida or the United States is a minor hazard, but a risk which must be acknowledged.

The knowledge that rabies does occur in the insectivorous free-living bats in Florida is another facet added to an old and complex problem. The limited findings reported here raise questions which can be answered only by further laborious and prolonged studies.

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Bat Rabies in Pennsylvania

ERNEST J. WITTE, V.M.D., M.P.H.

✣ A woman was recently attacked by a bat in Boiling Springs, Pa. It is believed that the bat was rabid at the time of attack. The history of this case and subsequent events have been reconstructed to this point as follows.

On the evening of September 29, 1953, at approximately 6 p.m., a bat suddenly landed on the upper arm of a woman and bit her without warning or provocation. The woman had been standing still at a lake front watching her husband feed waterfowl which he raises. The victim was startled by the attack and could not immediately identify the object clinging to her arm. Because of her fright, she does not recall distinct biting sensations, although she was conscious of the creature's scratching. Still not knowing what the object was, she finally grabbed the bat with her other hand and threw it against a nearby fence where it remained stunned by the blow. The husband of the patient was attracted by the commotion and quickly identified the animal on the fence as a bat. Being an amateur naturalist with a knowledge of wildlife, he quickly recognized the behavior of the bat to be abnormal. He had presence of mind to act with swiftness and cleverly trapped the creature in a pail which he had nearby and covered it with newspaper. In a matter of minutes the party headed back by canoe to the other side of the lake to their home. The woman proceeded immediately to the doctor for treatment.

The husband of the victim took the paper-covered pail containing the bat into the house for closer observation of the animal. He teased it with paper and it responded with a "hissing sound and bared its teeth," but made no great effort to fly out of the pail. At about 9 p.m. that evening the bat was carefully placed in a two quart jar and covered with a lid perforated for air. The specimen was taken to the local game protector who brought the bat into the laboratory of the Pennsylvania Bureau of Animal Industry the next morning. The bat was definitely alive in the morning, but died on the way to the laboratory.

Touch preparations and sections of the bat's brain revealed typical Negri bodies. These were confirmed by Dr. Gentzkow, director of laboratories, Pennsylvania Department of Health and by the Virus and Rickettsial Laboratory of the Public Health Service in Montgomery, Ala. Two rabbits (the animal of choice of this laboratory) were injected intracranially with the bat brain material. Both animals developed clinical symptoms of rabies; one died in 24 days and the other in 27 days. Complement-fixation and serum neutralization tests have not yet been carried out.

Unfortunately, the carcass of the bat was incinerated before species identity and slide interpretations were made. There is little doubt in the minds of all who saw the bat, including the husband of the victim, the game protector, and laboratory personnel, that the bat was of an insectivorous type. All agree that the bat was not one of the species commonly observed in the vicinity of the attack. The general consensus was that the bat appeared larger than the species usually seen, had larger ears, and longer body hair, which was grayish red in color with frosted tips. Up to the present time, the species of the bat has

definitely not been established. In an effort to determine the identity the Pennsylvania Game Commission is currently presenting preserved skins of bats to all who saw the original rabid specimen, and it is expected that the species of the attacking bat will become known.

The physician to whom the victim went for treatment reported that the patient received attention within one hour after the biting episode. He scrubbed the wound thoroughly with surgical soap and cauterized the wound, using an electric cautery. He said that there were three distinct tooth marks on the upper arm between the elbow and shoulder, the scars being visible to this day. He then called the Health Department for advice on the handling of this case. We immediately recommended antirabies prophylaxis and the woman received 14 injections of vaccine starting October 1, 1953. The patient suffered no adverse symptoms during the entire course of treatment, except for the usual localized reactions at the sites of injection, which are to be expected. As of this date, she remains in good health but is still under her physician's care.

The Division of Veterinary Public Health of the Pennsylvania Department of Health considered it highly advisable to initiate an immediate survey of bats for rabies following the attack in the area of Boiling Springs. This decision was motiviated to a large degree by the reports of the Florida experience. Consequently, a meeting was arranged attended by representatives of the Bureau of Animal Industry, the Game Commission, and the Department of Health. The Game Commission agreed to collect bats and the Bureau of Animal Industry consented to do diagnostic work on the specimens collected. Dr. Gentzkow also offered his diagnostic services for this project. Unfortunately, only seven bats were collected through our efforts. They have all been negative on smear preparations. The Game Commission explained that the small number of specimens collected so far is due to (1) cold nights which keep nonmigratory species from flying and (2) migration of species southward.

It is hoped that the bat survey project will be resumed when weather conditions become more favorable.

Recent Developments:

The attacking bat mentioned in the above discussion has since been identified as a hoary bat (Lasiurus cinereus). Identification was made by showing bat skins to the bat victim and her husband, the game protector who brought the bat to the laboratory, and staff members of the Pennsylvania Bureau of Animal Industry Laboratory. All were unanimous that the offending bat was a hoary bat. The bat skins were supplied by the Reading Museum, located in Reading, Pa.

The scars resulting from the bat bite and subsequent cauterization were still present on the victim's arm. These matched perfectly the tooth pattern in the skull of this species. In addition, the wing spread of the hoary bat was ample to produce the scratches noticed by the victim on her shoulder and above her elbow following the attack.

In the warm months this bat is distributed well over the United States and into the lower part of Canada. In the colder months it migrates as far south as central Mexico.

Dr. Witte is chief, Division of Veterinary Public Health, Pennsylvania Department of Health, Harrisburg, Pa. This paper is a discussion of the previous article by Mr. Venters and was presented before a Joint Session of the Epidemiology and Laboratory Sections of the American Public Health Association at the Eighty-first Annual Meeting in New York, N. Y., November 10, 1953.

Transfer of Sanitation Programs from Health to General Inspection Departments—The Los Angeles Study

CHARLES L. SENN, F.A.P.H.A.

Public health, safety, fire, zoning, and other municipal inspection officials go about the community, each carrying out the duties imposed by law on his department. Sometimes they travel in "teams." Common sense would say, combine the inspectional functions, let one official do all the jobs and save the city money. But in this instance, common sense may be less than solid, sound sense. This paper looks usefully into that proposition.

✢ In almost any city or county there are periodic movements to "eliminate overlapping and duplication of inspection services." A portion of a resolution adopted by the Los Angeles City Council in December, 1950, illustrates the viewpoint of many citizens and elected officials:

WHEREAS, there is a duplication of inspectors in many fields of local work, namely, Health Inspectors, Building and Safety Inspectors, Board of Public Works Inspectors, Fire Inspectors, Zoning Inspectors, who investigate the same or similar complaints at one location; and

WHEREAS, if one inspector class were created, namely a "Safety Inspector" who would be thoroughly trained and qualified in working conditions and practical knowledge of the various departments concerned, namely, Health, Sanitation, Fire, Zoning, Building and Safety, Public Works, the elimination of inspectors in the field would save the taxpayers an estimated $250,000.00 per year;

NOW, THEREFORE, BE IT RESOLVED that the Heads of Departments be requested to notify the Governmental Efficiency Committee of their plans and ideas concerning the elimination and duplication of certain types of inspection work and requiring one particular type of inspector . . .

This resolution, combined with a proposal to transfer all housing inspection from the Health Department to the Building Department, led to a series of investigations, studies, hearings, and reports.

While the resolution was under consideration, public housing became a major local political issue. Builders and real-estate groups strongly advocated a comprehensive housing inspection and enforcement program to "eliminate slums and the need for subsidized public housing." The superintendent of the Department of Building and Safety reported that slums could be eliminated by law enforcement if his department were given full legal authority, enforcement responsibility, and personnel. It was proposed that all housing inspection work of the Health Department be transferred to the Building Department, and this led to informal consideration of transferring the whole Sanitation Bureau to the Department of Building and Safety.

Introducing his report on a thorough investigation of this subject, City Administrative Officer Samuel Leask, Jr., wrote:

The administration of housing and building regulations in the majority of cities in the United States has been characterized by an almost complete lack of coordination. In recent years it has become increasingly evident that the health and safety of the people in a

given community as well as the administration of building and housing regulations demand closer integration. A number of cities such as Cleveland, Detroit, Milwaukee, Hartford and Philadelphia have established new administrative patterns for the consolidation of building regulation activities.

Here in Los Angeles, the policy pattern is clearly set. The Mayor (former Mayor Fletcher Bowron) in his message to the Council which accompanied his proposed budget for 1952–53 said: "Provision is made in the proposed budget for the continuation of a slum clearance program centralized for administration in the Building and Safety Department. It will be under the direction of the Superintendent of Building, and provision is included for a position as Assistant Chief of the Building Division who will have immediate supervision of the program. Slum clearance will also require active participation by the Fire, Health and City Planning Departments."

In a succeeding section of the same budget message, the Mayor observed, "among the most frequent complaints brought to my attention by citizens are those which relate to the multiplicity of regulatory inspections to which contractors, business firms and many individual citizens are subjected. While I realize that these inspections are performed in accordance with ordinance requirements, it is very apparent that there is considerable overlapping. This results in unnecessary expense, duplication and confusion. In accordance with the provisions of the Charter, I have requested the City Administrative Officer to conduct a survey during the forthcoming fiscal year with a view toward establishing some form of control over regulatory inspection services."

The City Council's Chief Legislative Analyst, Fowler Jones, also studied the subject and in his report on an ordinance creating the Rehabilitation and Conservation Division in the Building Department, he said:

> The proposed ordinance should not be considered as one effecting the complete combination or integration of inspectional services of the City. The cooperation of the Building and Safety, Fire and Health Departments in this program of substandard dwelling rehabilitation should aid in the eventual integration of inspectional functions. . . .
>
> The City Administrative Officer is now investigating the integration of all licensing and inspectional functions within the City.

In submitting his views on consolidation of inspection services, Gilbert Morris, superintendent of the Los Angeles Department of Building and Safety, wrote:

> One of the most serious breaches of overlapping jurisdiction within City Government today is the situation wherein the Health Department shares the responsibility with the Building and Safety Department for the maintenance of plumbing, electrical, and construction requirements in existing residential buildings when the parent department for the original installation of these items is the Building and Safety Department.

Discussions developed the viewpoint that, as the Health Department sanitation program acquires engineering direction, there is an increasing trend toward "invasion" of the field of building and safety officials. A second, overlapping, jurisdictional unit assumes responsibility for reviewing plans and establishing standards for design, construction, and installations. Unless the program is carefully coordinated the public is faced with one extra barrier, needless referrals from one office to another and the necessity of obtaining approval from an extra, sometimes conflicting, group of regulatory officials.

The questions of avoiding and eliminating this extra public burden deserve to be faced squarely. A review of the progress of municipal public health sanitation programs reveals a gradual adaptation of fundamental engineering concepts to improve the environment, but when preventive sanitation is practiced on a sound public health engineering basis the program tends to impinge upon the work of agencies responsible

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Mr. Senn is engineer-director, Bureau of Sanitation, City Health Department, Los Angeles, Calif. This paper was presented before a Joint Session of the Conference of Municipal Public Health Engineers and the Engineering Section of the American Public Health Association at the Eighty-first Annual Meeting in New York, N. Y., November 12, 1953.

for reviewing plans and supervising construction and installations. For instance, emphasis in rat control is shifted from poisoning and trapping to ratproofing, requiring changes in the design and construction of buildings. Development of design and installation standards for hot water systems for machine dishwashing imposes new requirements upon plumbers who may be under building department jurisdiction. Sanitation standards for floors, walls and ceilings, and plumbing and equipment installations in all types of food and milk plants, written into health codes, do not come to the attention of architects and engineers who look to building, not health departments, for design and construction requirements. Efforts of sanitarians and engineers, formerly devoted to abating nuisances from overflowing cesspools, are now diverted to the review of subdivisions and approval of plans to encourage or require adequate private sewage disposal systems. Cross-connection surveys and elimination of insanitary fixtures, such as vertical jet drinking fountains, tend to encroach upon the work of the agency responsible for the original plumbing installations. A broad housing inspection program and the concept that health departments should be officially concerned with home safety add to the problem of overlapping jurisdictions. Ordering improvements and repairs to defective stairs, handrails, and floors, elimination of hazardous wiring, and securing installation of adequate ventilation and plumbing all tend to impinge upon the responsibilities of building and safety and fire prevention officials.

Such questions are then asked: Is the local sanitation program predominently an engineering, planning, and design program? Is the preventive sanitation approach (proper design and construction) supplanting traditional abatement and sanitary inspection duties? Will environmental sanitation programs, with acceptance of the technical, preventive, public health engineering approach, continue to be closely related to the medical, nursing, and laboratory programs of the health department, or is the work becoming more closely related to approval of plans, writing of building and plumbing codes, and supervision of construction and installations and other responsibilities delegated by law and charter to the building and safety department?

Certainly, a vast amount of traditional and routine sanitary maintenance will continue to require the sympathetic, educational approach now commonly adopted by the modern health department; but the control of communicable disease is becoming relatively less important in modern municipal public health engineering, while the securing of sanitary design, construction, and installations is growing in relative importance. The Los Angeles discussions brought out the fact that for routine sanitary maintenance of a community there should be systematic inspection of all types of premises, especially in blighted commercial and industrial areas, and that the trained sanitarian is the logical person to do this work. It was recognized that the health department must continue to be primarily responsible for "disease control," but this factor was dwarfed to insignificance in comparison with the potential benefits from a comprehensive, integrated, housing enforcement program under direction of an official who could handle any desirable requirement, whether the objective is to protect health, morals, safety, or the prevention of fires.

Students of administration recommend "division of work" into units which are small enough, or sufficiently homogeneous, to be manageable. To achieve homogeneity and to promote the concept of "unity of purpose," local governmental operations are divided

according to the major purpose of each department, such as education, police, fire protection, etc. If it were not for the division of work concept, it would be logical to assume that all law enforcement work would be done by a single agency. Work must be divided because there is a definite limit to the number of different types of specialized functions which can be handled by a single individual. While it might be possible for a capable administrator to secure coordination of a wide variety of inspection and enforcement activities, it would be necessary for a number of different types of specialists to carry out the complex and highly technical enforcement functions of the various local agencies. This definite limitation on man's ability to master a wide variety of specialized subjects is apparent when the health department sanitation administrator attempts to change from a specialized to a generalized inspection program. This matter was recognized in City Administrative Officer Leask's statement:

> Desirable as combinations (of inspection services) might be from the standpoint of economy, we do not believe that much of a practical nature could be accomplished here since in most instances the objectives sought and the skill and knowledge required are not sufficiently similar to warrant combination.
>
> Within the Health Department, combination of inspectional duties has been occurring consistently within the past ten years and at the present time could well represent the maximum in variety which can be performed adequately by one individual.

Recognizing then, that the actual field inspection work must be done by a number of different specialists, the principal question is, in accordance with the division of work by purposes of the governmental agency, should the administrative unit which directs the environmental sanitation program be part of the "health" function or part of a "building, safety, and maintenance inspection" function?

Professor Herbert A. Simon [1] outlined the division of inspection functions as follows:

> 1. Health and sanitary ordinances would be assigned to the health department for enforcement;
>
> 2. Fire prevention and fire protection ordinances would be assigned to the fire department;
>
> 3. Other regulations, which would include the building and safety or safety engineering inspectional functions, weights and measures inspections, and smoke abatement, as well as miscellaneous regulatory inspections, may be appropriately handled in a separate unified department, cooperating especially with both the health and fire officials.

In her book, written in 1932, Edna Trull [2] included in an account of "the maze of overlapping and duplicating inspection services existing in several communities" this statement:

> There seems to be little reason why building plan examiners and checkers for zoning, structure, materials, exits and the like, cannot also check for ventilation, cubic air space, and the location of toilet facilities instead of having the latter items especially and independently checked by the Housing Section of the Health Department. Nor does it seem necessary to have inspectors of the Health, Fire and Building Departments each separately searching the same premises for accumulations of rubbish, unless such inspections are scheduled at appropriate intervals. Similarly, there can be little advantage in having a fireman, a policeman, a housing inspector, and an agent for the license division visiting the same building to determine whether the regulations as to proper use are being violated.

In 1932, as now, there was no simple solution to the problem. After her exhaustive study Miss Trull's summary indicated an uncertainty and an almost contradictory viewpoint when she said:

> Inspection activities may be divided into three major groupings. The first are those inspectional services which are vitally connected with the health of the community, primarily matters of food supply and to some extent sanitation, which are best controlled by health officials. Second, are the inspectional activities directly essential to effective control of

fire . . . which should be supervised by the fire department. Into the third class fall the other municipal inspections . . . many of them activities significant for health and fire prevention, to be sure, but all of them having special techniques which differentiate them from the work of established departments. . . .

Within these three departments there is infinite scope for the organizer to affect unification and coordination, and certainly, much is desirable. The extent to which it is possible will depend entirely upon the personnel available. Considerable advantage will be gained from a general department of inspections covering each of these three fields.

With proper coordination, inspection and regulatory programs can function smoothly and effectively when handled by a number of different departments. Various types of coordinating committees, or assignment of the responsibility of coordination to a top official of local government, can go a long way toward accomplishing the results sought through consolidation. In housing, though, the common result of "coordination" has been an inspection group from three or more departments making joint inspections. Sending into the field a group of inspectors is not a satisfactory answer to citizens, the lawmakers, or administrators who are searching for ways to effect economy through reduction of personnel. They believe a single individual could and should do the routine inspection work handled by the "housing teams."

The Los Angeles city administrative officer and the chief legislative analyst visited a number of cities and made a comprehensive study including studies of the literature on inspection programs. Mr. Leask concluded his report with the statement ". . . the complex matter of inspection cannot safely be oversimplified. For the present it appears best that responsibility be left among the several departments." Legislative Analyst Jones agreed. However, the City Council Committees which reviewed and studied the reports on that subject seemed most anxious that the entire supervision of maintenance of buildings, premises, and the environment be coordinated under one head. They seemed to feel that the citizens expect such coordination; so it was decided that the whole matter will continue to be studied.

Students of government, administrators, and elected officials are all concerned with the public complaint against "all the highly paid city inspectors." They continue to consider the advisability of consolidation of inspection services. What should be the attitude of the health official? He certainly cannot bury his head in the sand. He cannot rest his case entirely on the fact that only members of a health department can handle matters that pertain to public health. He should realistically appraise the problem from the viewpoint of the outsider.

As the first step, all legal requirements for construction and installation should be clearly specified in the codes enforced by the agency legally responsible for approving plans and for supervising installation. Otherwise health department representatives are in the unenviable position of requiring changes in buildings and installations approved by another local department. Health departments should not narrowly confine their interests to disease control but should be willing to assume functions administratively related to their work but which will not necessarily control disease. This broad concept of the scope of the job enables the health department to carry out the type of housing inspection programs which practically eliminate the need for "overlapping" inspections by other departments. On the other hand, the health department administrator must be willing to agree that officials of other agencies might properly handle some functions that directly relate to this broadly conceived environmental sani-

tation program, but which can best be administered in connection with other regulatory programs.

In considering the give and take of accepting progress and changes we might properly close with a quotation from Miss Trull:

> Coordination does not mean the end of the identity of the various units of inspection, but rather a recognition of their common problems, and their joint elevation in municipal government to a position of influence and prestige worthy of their combined significance. The treasured prerogatives of existing departments and chief inspectors may in some cases undergo inevitable metamorphosis but this is a justifiable concomitant of administrative progress.

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Course in Epidemiology for Nurses

The Communicable Disease Center, Public Health Service, in Atlanta, Ga., announces a refresher course in communicable disease control for public health nurses and instructors in communicable disease nursing, April 26–May 14. The course, designed to give an understanding of current communicable disease problems and their control, will emphasize epidemiological principles and technics. Following the course, supervised field experience will be available to a limited number of students.

Further information and application from your State Health Department, Director of Public Health Nursing, or Chief Nursing Consultant, Communicable Disease Center, 50 Seventh St., N.W., Atlanta, Ga.

Primary Response of Children to Glycerinated or Dried Smallpox Vaccines of Calf Lymph or Chick Embryo Origin

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Readers, other than the immunologists to whom it is chiefly addressed, will follow with interest this clear and seemingly convincing finding that chick embryo (smallpox) vaccine is antigenically equal to, and probably safer than, calf lymph vaccine. They will be disposed to tuck away this report on a long-known phenomenon as further evidence of our all-too-human resistance to change.

✣ Since the discovery of Goodpasture, Woodruff, and Buddingh [1] that vaccinia virus could be grown without difficulty in the chorioallantoic membrane (C.A.M.) of embryonated chicken eggs, numerous investigators [2-13] have employed this method for the preparation of experimental vaccines for use on human beings. Successful results with characteristic "takes" on primary vaccination were obtained by the majority of these authors who expressed the hope that wider experience with the vaccine of chick embryo origin would ultimately result in its general use for human immunization, replacing calf lymph vaccine. However, 20 years have elapsed since the original propagation of vaccinia virus in the chick embryo and there still is a general reluctance to abandon the time-tested and honored calf lymph vaccine for the more recent and relatively untested chick embryo propagated virus.

The advantages of the chick embryo method over production in calves seem to be obvious. The control of bacterial contaminants, which is almost impossible to realize in the calf method, is readily attained in the chick embryo. Furthermore, it is possible to produce large quantities of vaccine in a considerably shorter time in the face of an emergency and the method presents other economic aspects which greatly contribute to the desirability of the use of the chick embryo for the manufacture of smallpox vaccine. To illustrate the relative simplicity with which vaccine can be prepared in the chick embryo as compared with the calf method, the steps leading from inoculation to harvest of the infected tissues by both technics have been summarized in Table 1.

Four years ago, three of the present authors undertook the study of chick embryo grown vaccinia virus in order to reinvestigate the possibility of its eventual use for large-scale production of smallpox vaccine.

The present communication is primarily intended to report comparative results of vaccination of children with glycerinated calf lymph and fifth passage chick embryo origin vaccines. It also gives the results obtained on different groups of children with calf lymph or chick embryo origin vaccines which were dried from the frozen state. In addition, a method for the objective evaluation of vaccinal "takes" is described.

Materials and Methods

Strain of virus—The virus used in this study had originally been isolated in 1909 from scabs of human vaccina-

tions which were obtained from the New York City Board of Health. It has since been maintained in this laboratory by alternate passage through calves, rabbits, and human beings and has continuously been used for the commercial production of calf lymph vaccine.

Preparation of Vaccines

Glycerinated calf lymph vaccine—This vaccine was prepared according to the minimum requirements set forth by the National Institutes of Health, Bethesda, Md. It consisted of a pool of six different calf pulps which were made into a 20 per cent suspension in neutral buffered glycerine solution, the final concentration of glycerine being 45 per cent. It was dispensed in the usual manner in capillary tubes and stored at —18° C. This vaccine will hereafter be designated as vaccine A.

Glycerinated chick embryo origin vaccine—This vaccine represented the fifth passage of the virus on the C.A.M. of embryonated chicken eggs. It was prepared in the following manner, using an incubation temperature of 36° C. Seed virus was first made by infecting 11 to 12-day-old chick embryos with the third chick embryo passage virus. The infected portion of the membranes was harvested after 48–72 hours' incubation, pooled, and made into a 20 per cent suspension in sterile, buffered distilled water. Without centrifugation, the suspension was distributed in glass ampules in 0.5 ml. amounts. Following sealing and shell freezing, the seed ampules were stored at —60° C. After having proved the suspension to be free of bacterial contaminants and before preparation of the vaccine, it was essential to determine the proper dilution of this fourth passage seed virus to use for embryo inoculation. Repeated titrations on the C.A.M. of 11 to 12-day-old embryos revealed that a dilution of 1:100,000 of this particular lot of seed was optimum for harvesting after 72 hours' incubation. At this dilution the mortality rarely exceeded 15 per cent at time of harvest and confluent lesions were observed on most of the surviving embryos. Consequently, 147 embryos were inoculated with 0.25 ml. of the 1:100,000 seed dilution. After sealing and incubation for 72 hours, the 122 embryos which were found to be alive were dipped in 5 per cent Roccal solution and drained. The infected portions of their C.A.M., which presented at that time confluent lesions of varying sizes, extending in many to the entire base of the artificial air sac, were harvested, pooled, weighed, and frozen. While still in the frozen state, they were made into a 40 per cent suspension by means of a cooled Waring blendor. The final glycerine concentration in the preparation was 50 per cent. After testing for sterility and purity, the bulk vaccine was dispensed in capillary tubes and stored at —18° C. Hereafter, it will be referred to as vaccine B.

Vacuum-dried calf lymph vaccine—This was prepared in a manner identical to that of vaccine A, except that the pulp suspension was made in buffered distilled water instead of glycerine. The suspension was distributed in 2.0 ml. amounts in glass vials and was dried from the frozen state by way of a Vandon dryer. The dried vials were sealed under oxygen-free nitrogen and stored at —18° C. This vaccine will be designated as vaccine C.

Vacuum-dried chick embryo origin vaccine—Like vaccine B, this dried

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Table 1—Comparative Steps Leading to Production of Smallpox Vaccine by Either the Calf or the Chick Embryo Methods

Calf Method	Chick Embryo Method
Animal Requirements	
Calves 6–8 months of age, weighing approximately 200–300 pounds	Embryonated chicken eggs, 11–13 days of age
Preliminary Requirements	
1. Inspection by veterinarian 2. 7 days quarantine period 3. Tuberculin test 4. Temperature twice daily 5. Injection of antihemorrhagic septicemia serum 6. 4 injections of Sulmet	1. 100 per cent S. pullorum free
Preparation for Inoculation	
1. Entire skin area clipped and washed with soap solution 2. Area to be vaccinated closely shaved 3. Calf washed 3 times with soap solution, thoroughly rinsed with tap water, alcohol, and distilled water 4. Side of abdomen to be vaccinated scarified with multiple-needle scarifier	1. Embryos candled; air space and an area over C.A.M. marked 2. Small holes drilled over markings 3. Artificial air space made between shell and C.A.M.
Seed Virus	
1. Maintained by serial passages in calves and occasional passage in rabbit and represents a 20 per cent calf pulp suspension 2. Amount used: 20 ml. of calf lymph suspension per animal	1. 20 per cent suspension of either calf pulp or C.A.M., representing a passage level not higher than the fourth 2. Amount used: 0.25 ml. of a 1:100,000 dilution of tissue suspension
Inoculation	
1. Seed virus rubbed vigorously over scarified area	1. Seed virus dropped on C.A.M. with a syringe and needle through opening over artificial air sac
Postinoculation Care	
1. Incubation period: 5–7 days 2. Animals attended 24 hours daily 3. Temperature twice daily 4. Autoclaved food for animals 5. Special care in disposal of excreta 6. Vaccinated area sprayed twice daily with 1:1,000 Zephiran solution	1. Incubation period: 72 hours 2. Eggs candled daily and dead embryos discarded
Harvest	
1. Vaccinated area washed 3 times with soap solution, rinsed with fine tap water spray for 1 hour, sprayed with 1:100 Zephiran solution and rinsed with distilled water 2. Calf exsanguinated 3. Pulp collected with curettes, placed in sterile tubes, weighed, quick frozen, and stored at −60° C.	1. Eggs dipped in 5 per cent Roccal solution and drained 2. Shell cut, and infected portion of C.A.M. removed, placed in sterile tubes, weighed, quick frozen, and stored at −60° C.
Yield	
150 embryos yield approximately equal amounts of vaccine as 1 calf	

Table 2—Comparative Potencies in the Rabbit of Calf Lymph and Chick Embryo Origin Vaccines (Per cent of Skin Area Covered by Confluent Lesions)

Type of Vaccine	Virus Dilution				
	1:1,000	1:3,000	1:10,000	1:30,000	1:100,000
A	95	75	35	7	NT*
Control	100	75	30	5	NT
B	98	85	30	0 + 7†	NT
Control	100	60	20	7	NT
C	98	90	50	15	5
Control	100	98	65	35	0 + 4
D	100	100	95	80	55
Control	100	100	95	65	40

* NT — dilution not tested
† 0 + 7 = no confluency, 7 isolated pocks

preparation also represented the fifth passage of the virus in the chick embryo. It was made according to the same technic as vaccine B, except that it consisted of a 20 per cent infected C.A.M. suspension in buffered distilled water. The suspension was distributed in 2.0 ml. amounts in glass vials and, like vaccine C, was also dried from the frozen state on a Vandon dryer. The vials were sealed under vacuum and stored at —18° C. This preparation will be referred to as vaccine D.

Comparative titrations of vaccines A, B, C, and D—Each of the four vaccine preparations used in this study was titrated in rabbits according to the method described by Force and Leake.[14] For purposes of comparison, the results are shown in Table 2. It may be observed that the four vaccine preparations gave comparable results when titrated on different rabbits against the same standard control preparation. The differences observed with the same standard control are within the expected range and may be attributed to the relative susceptibility of different animals to vaccinia virus.

Vaccination of Children

All except one of the children included in this study were said to have had no previous smallpox vaccination. Vaccination was carried out by the multiple-pressure method on the skin area over the insertion of the deltoid muscle, using 10 pressures per vaccination. For the sake of uniformity and in an effort to apply as much as possible the same degree of pressure, all vaccinations were made by the same person. The capillary tubes containing the glycerinated vaccines were broken at the time of each individual vaccination; whereas each vial of dried vaccine was reconstituted with 2.0 ml. of a sterile 50 per cent glycerine solution and shaken vigorously for one minute just before the vaccination of a group of children was begun. The reconstituted material was withdrawn from the vial with a syringe and needle and small drops of vaccine were deposited on the cleansed area of the skin.

Interpretation of Results

It is usual to classify the results of vaccination against smallpox as "pri-

mary take" or "vaccinia," "accelerated take" or "vaccinoid," and "immune" or "immediate reaction" according to the criteria described by Leake.[15] In this particular study only primary takes were expected and for an objective comparison of the takes obtained with the different vaccines used a more detailed description of the reactions was sought. Ordinarily, measuring the smallest and largest diameters of the areola on certain days following vaccination is considered to be sufficient for determining the size of the reaction. However, this method of measurement did not seem very satisfactory for the present study because of the variety encountered in the shape of the erythemas. Consequently, a permanent record for each individual was kept by tracing daily the edges of the reaction on transparent material from the very first day to the time the scab was ready to fall. A rectangle of plastic was placed over the vaccination area, the areola and the central area of the reaction being traced with a ball point pen. The individual tracings were immediately transferred by retracing with pen and ink in a draftsman's tracing book. Complete permanent records were made for a period of 12 days on children of Group II and for 11 days on the rest of the children. An example of such a record for one child is given in Figure 1. In addition, six children from each of the first three groups were designated at random on the day of vaccination and their reactions photographed daily on kodachrome film for either 11 or 12 consecutive days.

Experimental Vaccination

One hundred and four children were included in this study. Their ages ranged from four months to six and one-half years, with the majority being between six months and three years. There were 51 boys and 53 girls. These children lived in three separate upstate New York institutions and were under careful medical and nursing supervision. At the beginning of the study the children were divided into six groups and each group was vaccinated according to the schedule given in Table 3.

In order to make a qualitative as well as a quantitative evaluation of takes with two kinds of vaccines on the same

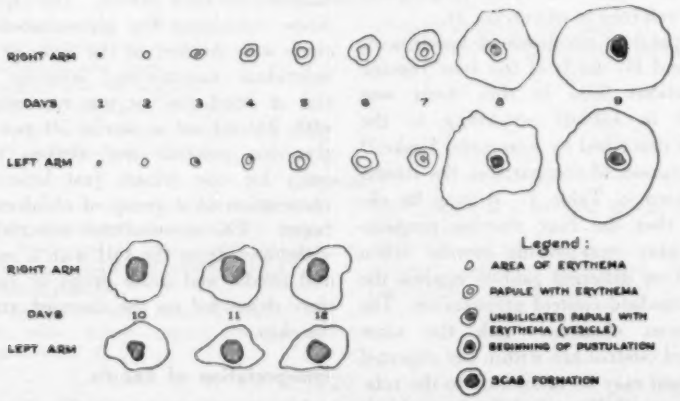

Figure 1—Record of Daily Reactions of a Child Following Vaccination on Both Arms with Two Different Kinds of Smallpox Vaccine Scale: —10mm.

Table 3—Schedule of Vaccination of Children with Four Different Vaccine Preparations

Group Number	Number of Children	Average Age in Months	Type Vaccine	
			Right Arm	Left Arm
I	24	12	A	B
II	26	26	A	C
III	24	34	A	D
IV	12	10½	..	B
V	8	33	..	C
VI	10	40	..	D

individuals, Groups I, II, and III were vaccinated on both arms. Vaccine A was used on all three groups as a standard control and was always inserted on the right arm. Vaccines B, C, and D were always inserted on the left arm of the respective groups of children. In addition, vaccines B, C, and D alone were given to Groups IV, V, and VI, respectively. No control vaccine was used on these groups in order to eliminate the possibility of any crossed influence between the reactions to two kinds of preparations on the same individual.

Beginning 24 hours after vaccination

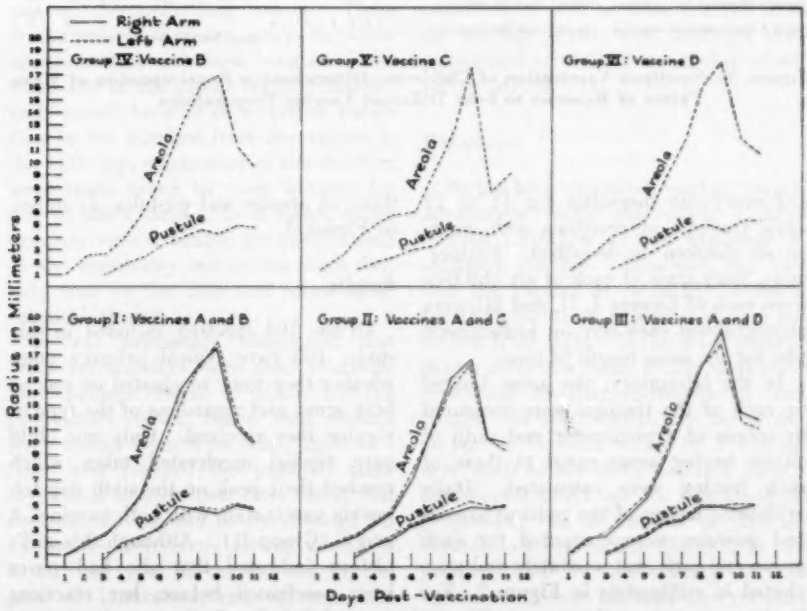

Figure 2—Smallpox Vaccination of Children—Graphic Presentation of Mean Values of Reactors to Four Different Vaccine Preparations

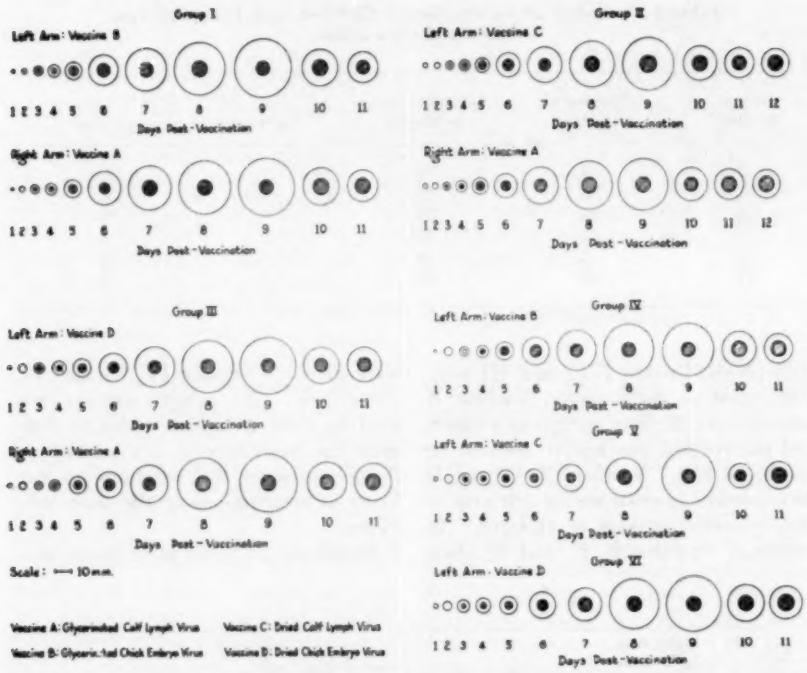

Figure 3—Smallpox Vaccination of Children—Diagrammatic Representation of Mean Values of Reactors to Four Different Vaccine Preparations

and every day thereafter for 11 or 12 days, tracings of reactions were made on all children as described. Furthermore, both arms of each of six children from each of Groups I, II, and III were photographed each day on kodachrome film for the same length of time.

In the laboratory, the areas limited by each of the tracings were measured by means of a planimeter and radii of circles having areas equal to those of each tracing were calculated. Daily arithmetic means of the radii of areolas and pustules were computed for each group and each arm separately and were plotted in millimeters in Figure 2. For further comparison, the mean radii were used to trace circles of areas equal to those of areolas and pustules, as shown in Figure 3.

Results

Of the 104 children included in this study, 103 gave typical primary takes whether they were vaccinated on one or both arms, and regardless of the type of vaccine they received. Only one child gave typical accelerated takes which reached their peak on the sixth day following vaccination with both vaccines A and C (Group II). Although this girl's history indicated that she had never been vaccinated before, her reactions were definitely similar to those associated with individuals who had given a

primary take after a previous vaccination in the recent past. The 103 primary takes included another girl, 16 months old, who had been vaccinated a year previously with no take of any kind.

As can be seen from Figures 2 and 3, no differences could be detected in the size of the reactions elicited by the different types of vaccines. Moreover, the evolution of the takes as well as the time at which the erythemas reached their maximum sizes were comparable in every respect. This was equally true for children vaccinated on both arms with two kinds of vaccine, as well as for those who had received only one kind of the experimental preparation on the left arm. All the individual erythemas reached their peaks on the ninth post-vaccination day. On close examination of Figures 2 and 3, Group V, which received vaccine C, seems to present some irregularities in the evolution and size of the mean take values. These irregularities, however, may be more apparent than real: first, because of the small size of the group (eight children) and second, because of a further reduction in the number from the eighth to the 11th day, when some of the children were taken home by their parents for one or more days. As a result, seven children were available for examination on the eighth day, six on the ninth day, only four on the 10th and seven again on the 11th day.

It was previously mentioned that other investigators, who used relatively high passage levels of chick embryo propagated virus, found that lesions were milder than with calf lymph vaccines and reached the peak of their erythemas one or two days later. In contrast, the present study revealed no qualitative differences among reactions to all four types of vaccine and the degree of induration and subcutaneous swelling was the same in all cases. Whether this occurred because of the relatively low chick embryo passage level of the virus used in the study cannot be affirmed at this time.

Except for some transient elevation of temperature in some of the children, no other side reactions were observed with any of the vaccines employed. Temperatures ranging from 101° F. to 104° F. of one-day duration were recorded for eight children and occurred between the second and 10th day following vaccination. Four of the children belonged to Group I, one to Group II, one to Group III, and two to Group VI. Forty days after vaccination the scars looked normal in every case and were of about the same size. No indication of keloid formation was present in either white or Negro children.

Finally, careful examination of the daily kodachromes taken from 18 children belonging to Groups I, II, and III corroborated the observations made during the daily inspection of the vaccinations, as well as those derived from the tracings which were analyzed after completion of the 11- to 12-day observation period.

Discussion

As has been mentioned earlier, several advantages make the chick embryo method attractive to the producer of smallpox vaccine. However, the fact that the vaccine is primarily intended for the control of smallpox should not be lost from sight. Is the chick embryo grown virus less likely to afford as good protection as that conferred by calf lymph? In other words, will the propagation of vaccinia virus in a foreign host, such as the chick embryo, have a detrimental effect on its immunogenic properties? It is difficult to give an absolute answer to this question at the present time, for the efficacy of any vaccine can only be definitively established by its ability to protect against the form of the disease encountered in

the field. In the case of smallpox, however, such a crucial test with the chick embryo vaccine would be impractical, to say the least.

However, some evidence in that direction seems to have been obtained in India by Pandit [8] who investigated an outbreak of smallpox in a village comprising 1,442 inhabitants with 64 cases of smallpox and 13 deaths. The author had previously vaccinated some of these persons with either calf lymph or chick embryo origin vaccines and, despite the fact that reactions were generally milder with the chick embryo vaccine, he was able to make the following observations when the outbreak of the disease had subsided.

Of 96 children who had primary takes with the chick embryo vaccine within a period of five years preceding the outbreak, none came down with smallpox. Of a similar group of 118 primary vaccinations with calf lymph vaccine, one contracted the disease and recovered. This was a 25-year-old adult who had been vaccinated five months previously. Of a group of 169 unvaccinated persons of all ages, there were 19 cases of the disease with seven deaths. The remaining cases had occurred among the rest of the population which had been vaccinated with calf lymph five or more years before. Analyzing the data still further, the author noted that the 64 cases of smallpox had occurred in a total of 36 houses within the village studied, comprising in all 203 residents. He considered this group of people to have had a maximum exposure to infection, and found that there were no cases of smallpox among the eight individuals who gave primary takes with chick embryo vaccine. Of 10 people giving primary takes with calf lymph vaccine, one became ill and recovered. This was the 25-year-old adult mentioned earlier. Of a group of 30 unvaccinated individuals of all ages, 19 contracted the disease and seven died. This latter group included eight unvaccinated children up to five years of age, of whom seven developed the infection and three died. It would appear from these data that, within a period of five years from vaccination, no difference could be noted in the protection afforded by either type of vaccine.

Moreover, it seems difficult from a biological standpoint to visualize a drastic modification of the antigenic structure of a viral agent taking place after only a few successive passages in a foreign host. It is a well known fact that only continued propagation of yellow fever virus in chick embryo tissue culture led to modification of its invasive properties without altering its ability to immunize people. Similarly, a strain of distemper virus adapted and serially propagated in the chick embryo in South Africa remained virulent for the ferret after 90 consecutive passages. Also, two other strains of the same virus cultivated in the chick embryo in this country remained virulent for the ferret after 26 and 38 serial passages, respectively, and when modification did take place no loss in their immunogenic ability could be demonstrated even beyond the 70th chick embryo passage level. A strain of rabies virus became truly modified only after repeated passages in the young chick and later in the chick embryo; whereas a strain of rabbit-adapted hog cholera virus remained fully virulent for swine even after 50 consecutive passages or more in the rabbit.

Experimental vaccinations of human beings with chick embryo propagated virus have generally been found to differ little from those obtained with calf lymph, in so far as the quality of the primary take in its successive stages and the time of formation of the maximum erythema were concerned. It is true that a belief prevailed that both local and general reactions were as a rule milder than those elicited by calf lymph

vaccine. However, not all the investigators have specified the chick embryo passage levels from which the experimental vaccines were derived and those mentioning them have frequently used relatively high passage levels.

Using vaccine made from the 75th chick embryo passage in their original work, Goodpasture and Buddingh [9] noted milder lesions throughout the first eight days following vaccination, with less induration and pustulation than with calf lymph. The erythema reached its peak on the 10th to 12th day. Later on, Buddingh [10] used vaccines of the 100th and 240th passages and, although the evolution of the reactions with the vaccines was in every essential respect comparable to those which follow calf lymph, he reported that they appeared to be definitely milder than with calf lymph, with less subcutaneous swelling and induration.

Is it really necessary to use chick embryo vaccines of high passage levels? It seems logical to assume that if an antigenic alteration of vaccinia virus may occur in the chick embryo, its chances to do so may increase with repeated transfers in that host. How could the passage level proper for routine use be determined? Unlike most of the other chick embryo grown viral agents, vaccinia virus requires no adaptation period in the chick embryo. It multiplies readily on the C.A.M. following the very first inoculation of calf lymph virus. Furthermore, the virus needs no additional modification and can be used for human vaccination from its first passage in the chick embryo. Today, the use of antibiotics allows inhibition of bacterial contaminants in the calf lymph with markedly reduced loss of embryos upon first passage of this material on the C.A.M.

That repeated passages in the chick embryo should have some effect on the behavior of vaccinia virus was first suggested by Goodpasture and Buddingh.[11] They reported that once vaccinia virus is established on the C.A.M., there appears to be a slight qualitative diminution in its pathogenicity for rabbits, monkeys, and man as judged by the gross appearance of cutaneous lesions on these hosts. Later, Buddingh [10] noted that when successive transfers of calf lymph virus on the C.A.M. were examined microscopically by sectioning lesions from each passage, there seemed to be a gradual loss of the affinity of the virus for mesodermal cells. Sections from the 40th to 60th passages no longer showed fibroblasts containing vaccinal inclusion bodies and the infection was limited to the epithelial cells of the ectoderm.

These observations seem to point to the possibility of a gradual alteration of certain characteristics of the virus, and constitute a further argument in favor of using very early chick embryo passage virus in vaccine production. Indeed, Cook, Crain, and Irons [12] carried a strain of virus from 180 to 309 chick embryo passages and did observe a marked reduction of the infectivity of late passages for the rabbit. They therefore used fresh calf lymph virus for vaccine preparation in the chick embryo. Indeed, a chick embryo origin vaccine has been continuously and exclusively used by the Texas State Board of Health since 1939. Over two million vaccine doses have so far been produced and distributed in that state, and the experience gained from its use in the field has been summarized recently as follows: the method is economical and entirely suitable for production of a fully potent vaccine. Under field conditions, 88 per cent primary "takes" occurred in previously nonvaccinated persons, whereas 100 per cent primary "takes" were obtained under controlled experimental conditions. In addition, there was some evidence that the chick embryo origin vaccine was successful in controlling an outbreak of smallpox in

Texas.[7] In a recent publication, Buddingh and Randall [13] once more pointed out the milder lesions observed in the rabbit with increased chick embryo passages, but could find no difference between the lesions formed by calf lymph and those obtained with first chick embryo passage virus. They also recommended, therefore, that calf lymph or first chick embryo passage virus be used as seed for the preparation of vaccine in the chick embryo.

Using smallpox vaccines of calf lymph or chick embryo origin (fifth chick embryo passage) in the glycerinated or dried state, the present authors obtained typical primary takes on 103 children, 102 of whom had never before been vaccinated. The time of appearance of the early papule as well as the evolution of the takes were similar in all cases, and no delay was observed in the time erythemas reached their largest size when the chick embryo preparations were compared with calf lymph vaccine. This was equally true for children who were vaccinated on one or both arms. Since those vaccinated on both arms received the conventional glycerinated calf lymph vaccine simultaneously with the experimental preparation, it could be argued that the former may have had an influence on the evolution and size of the latter. However, this is not borne out by the results obtained in single vaccinations with the respective experimental vaccines. It is also a well known fact that, regardless of the number of scarifications on the skin of a susceptible rabbit, reactions will be observed at the sites receiving the lower dilutions of a vaccine virus preparation; whereas the higher dilutions may be followed by no reaction whatsoever. Furthermore, although the subject of whether a viremic stage invariably follows vaccination has been somewhat controversial, investigators [16] who reported the isolation of the virus in the blood stream in certain normal cases of vaccination were able to do so between the third and the 10th days after inoculation. This, however, would not explain the uniform appearance of the early papule on the third day following vaccination with both the standard control and the three experimental vaccines used in this study. In this connection, it may be of interest to report the findings of Gastinel, Reilly and Mortier [17] on simultaneous revaccination with live and inactivated virus preparations. The results of these experiments indicated that when both preparations were used simultaneously on a person who had been vaccinated a long time ago and whose immunity had weakened considerably, a typical accelerated take is elicited by live virus vaccine and a weak immune response by an inactivated vaccine.

Summary

Smallpox vaccine preparations of either calf lymph or chick embryo origin, glycerinated or vacuum-dried, were used for the experimental vaccination of 104 children, 103 of whom had never before been vaccinated. An objective method was devised for evaluation of the results which failed to reveal any qualitative or quantitative differences between the primary takes which followed vaccination with all four vaccines used. Further studies on large-scale use of chick embryo propagated smallpox vaccine are in progress in order to investigate the antigenicity of this vaccine as compared with that of calf lymph preparations.

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Symposium on Venereal Diseases

The Sixth Annual Symposium on Recent Advances in the Study of Venereal Diseases will be held in the auditorium of the Department of Health, Education and Welfare, Washington, D. C., April 29–30, 1954. The sessions are open to physicians and workers in allied professions interested in participating. These symposia are the occasion for exchange of the latest available information in the field of venereal disease. Such aspects of venereal disease control as basic and clinical research, serology, epidemiology, treatment, program operation, and professional education are among the topics that will be discussed. James K. Shafer, M.D., is chief of the Public Health Service's Division of Venereal Disease.

Public Health Aspects of Atmospheric Pollution

FRANK PRINCI, M.D., F.A.P.H.A.

Though complete elimination of all air pollution is impossible, a sane balance between industry's right to reasonable operation and the public's right to a decent environment ought to be possible—so concludes this review of recent episodes of lethal air pollution.

✣ Despite the fact that the literature of the eighteenth century contains many references [1] to the hygienic dangers of atmospheric pollution, it is only recently that a number of acute episodes have focused the attention of health authorities on the deleterious effects to health of an industrially contaminated environment. Because of the impetus which has been given to air pollution study by such occurrences as were reported from the Meuse Valley in 1930, Donora in 1948, Poza Rica in 1950, and London in 1952, tremendous advances have been made in the development of engineering and analytical technics. Consequently, investigations of the materials in the atmosphere and their quantities and characteristics have become full-time projects for large groups of physical scientists and allied investigators.

The degree to which such atmospheric contaminants affect individual health has either been taken for granted on the one hand or totally ignored on the other. The dramatic incidents, which occurred when certain areas were blanketed by stable atmospheric conditions in the presence of noxious materials, produced sufficiently alarming increases in morbidities and mortalities as to provide in certain instances some information concerning the type of illness which was produced and the influence of the toxic materials which were present.

Thus, in Poza Rica, Mexico,[2] pollution of the atmosphere and the subsequent illnesses and deaths which occurred were traceable directly to an increased atmospheric concentration of hydrogen sulfide. In addition to a pronounced low-altitude temperature inversion, a high concentration of haze and nuclei, and a very slight wind, the victims were affected in a geographical area in direct proximity to the effluent stack of the unit which was discharging the offending gas. Atmospheric information and clinical and pathological evidence all indicated conclusively that hydrogen sulfide, and it alone, was responsible for the ill health that occurred.

Although no such clear-cut cause and effect relationship was demonstrable in the other acute episodes of smog, some valuable information has been gleaned concerning the forces which precipitated illness and the type of physical injury which was suffered by the population. In general, atmospheric changes, of themselves, would not have produced the injury to health on the total population that was demonstrated. Injurious materials, which accumulated during calm conditions under the low-lying temperature inversion, remained present in concentrations sufficient to produce ill health and death. The physiological effects were determined to be those which produced injury to the cardiorespiratory systems even when a definite

irritating agent was not identified, as was the case in Donora. It was apparent that some age groups and persons with pre-existing cardiopulmonary disease were most severely affected. But in neither the Donora nor the Meuse Valley incidents was any single noxious agent identified as having been present in a concentration sufficiently high to produce damage to the individual. Consequently, it has been postulated that injury was produced by a combination of irritating materials acting synergistically, but none of which was present in sufficiently high concentrations to have been the responsible agent per se.

In the London episode, however, atmospheric sampling was carried out during the fog period. Daily atmospheric smoke and sulfur dioxide average concentrations were determined and found to be higher than any that had been traced in previous records, some of which dated back to 1932. This information, coupled with the fact that mortality increases were associated almost entirely with disorders of the respiratory and circulatory systems,[3] provides the attractive theory that irritating material was inhaled which resulted in pulmonary irritation with subsequent bronchospasm, bronchiolarspasm, pulmonary edema, and death.[4, 6] This theory is suggested by the facts that the most severe cases were found in the elderly and some reports that infant mortality was increased. The latter fact is not consistent with Fry's [5] statement that, "It is remarkable that although there are quite a number of asthmatic children in this practice, none of them was affected; in fact, there was less illness than usual in children during this period." It was not unreasonable to expect that pulmonary irritants should have had an adverse effect on those with pre-existing pulmonary difficulty. The fact that such an effect was not recorded is worthy of note.

Thus, a critical examination of the various investigations shows that neither the postulate of synergistic activity nor the theory of pulmonary irritation have been, as yet, demonstrated to provide help in the study of future incidents. Although the respiratory tract is the obvious portal of entry to the body of atmospheric pollutants, many toxic materials may be absorbed through the respiratory system without providing direct irritation to the pulmonary epithelium; they may exert their primary physiological effect on other organ systems and the individual may still die a cardiorespiratory death. Therefore, in any consideration of the public health aspects of air pollution it becomes necessary to consider not only the environment, but man's ability to live in such an environment.

Consequently, investigations must be directed not only to the study of the effects of air contaminants on the various organs of the body but on the individual as a whole, measuring his capacity to handle various stresses. More adequate air pollution studies can be carried out during the next episode which, at this time, can be expected but the locale of which is not predictable. The combination of events which produce smog is by no means unexpected or entirely a product of twentieth century industrialization, since such factors were pointed out as early as 1781.[1] Properly functioning industrial hygiene departments today have the necessary information and technics available to them so as to be able to predict whether or not future incidents will occur. If, however, concepts of prevention have so far advanced that future acute episodes will not take place, retrospective

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consideration of old disasters will be unnecessary in terms of the public health.

The problem of long-continued exposure to smaller amounts of contaminants has become even more troublesome and difficult to study. The differences between "comfort," "nuisance," and "ill-health" are rarely recognized and as Dyktor [7] has said, the problem "is further aggravated in many communities and at various times by the publication of sensational and alarming statements authored by self-seeking and irresponsible politicians or professional men who ought to, and possibly do, know better."

Recently, the question of the chronic effects of air contamination was summarized as follows [8]:

1. The pollution of the atmosphere with allergenic material of natural, artificial, and industrial origin is associated with a frequent and apparently increasing occurrence of acute and chronic disease, involving especially the respiratory tract and skin.

2. Certain acute manifestations, caused primarily by respiratory or ocular irritation, have been observed in association with industrial operations and accidents and unusual weather conditions in localized areas.

3. The effects of the more common atmospheric pollutants upon the general health of the population of our urban and industrial centers have not been demonstrated in the form of authenticated chronic disease processes.

4. The complexity of the problem is such that further evidence must be sought before the hazard to public health can be appraised adequately.

At present, studies are being carried on in various areas with the hope that some of these problems will be answered at least partially. Atmospheric sampling has been and continues to be carried on in a number of cities, providing increasing information on known toxic materials and uncovering new information concerning substances the toxicity of which was either poorly or not at all understood. On a lesser, but nonetheless important, scale animal experimentation is being carried out with artificial smog. Finally, a limited amount of investigation is being carried on with human volunteers who are exposed to artificial smogs. The work which is being done in the Los Angeles area is particularly noteworthy in this respect.

All these investigations provide necessary steppingstones in our understanding of etiology and physiological effect but, of themselves, they cannot provide the required public health information. The latter must, of necessity, be found in properly executed epidemiological studies. Such studies will be both difficult and costly. They will be difficult because no indexes exist for the examination of our problem. They will be expensive because many years and adequate personnel will be required for a successful investigation. If air pollution data were regularly obtained in the larger cities, it is possible that their morbidity and mortality statistics might, in time, become more significant.

Epidemiological studies which are designed to demonstrate a causal connection between a suspected agent and human disease usually begin with a known and easily identified clinical syndrome. Initial studies are designed to determine the presence of the causative agent and, if possible, the mechanism by which it produces disease in man. Then the host and environmental factors which influence the prevalence and incidence of the disease are examined. Such a direct approach is not possible in air pollution studies, since there is no recognized or accepted disease syndrome and populations are exposed to a varying mixture of materials the characteristics of which may become modified under a variety of circumstances and may or may not constitute "stresses." Even such nonindustrial factors as the effects of sunlight, heat, humidity, etc., must be considered.

At this point, it is significant to note that what may be injurious to one indi-

vidual will fail to affect others of a group. Injury produced by toxic materials is the product of time of exposure times the dose (or quantity) of the deleterious substance. Since, under most conditions of atmospheric pollution, only a relatively small number of persons will be unable to tolerate the environment, it is necessary to study specifically those individuals who, because of their low tolerance to stress, react fairly promptly and in a specific manner to conditions which do not affect healthy persons.

Although some detailed morbidity surveys have been made, none of them has attempted to relate the incidence of disease to the degree of air pollution. It has been suggested that morbidity and mortality rates for respiratory and cardiac diseases would be useful as criteria. It is more likely that it will be necessary to make careful trials of a number of indexes before an adequate guide is developed.

If clinical disease entities and specific indexes are lacking at the present time, we are not entirely without methods for the development of such information. Many of the atmospheric contaminants which are discharged into the community by industrial plants exist in the same physical forms and chemical combinations as they occur in the industrial environment. In this environment are exposed workers whose daily activity and exposure is open to direct observation and study. Under these conditions, properly conducted medical programs in industry will furnish much information which will be important not only in determining the clinical entitier which may be anticipated, but also in helping to establish tolerance limits of various noxious substances. These medical programs must be more than routine medical examinations, too many of which are performed in a casual and indifferent fashion. They should, of themselves, constitute investigations of general well-being and etiological factors according to basic epidemiological principles in an attempt to determine causal relationships. These principles have been described as follows [9]: (1) a toxic effect has occurred; (2) a pollutant capable of causing this effect is (has been) present; (3) there is (has been) an excessive exposure to the pollutant; and (4) other causes of the toxic effect do not exist.

The information that can be derived from these medical investigations, which should be routine medical department procedures, will aid not only in maintaining the health of workers within an industrial environment but will also be effective in protecting the community from the consequences of the discharge of industrial wastes. In addition, such medical research will bring us closer to the point where the very earliest changes and perhaps even the slightest changes brought about by disease processes may be detected.

The public health aspects of atmospheric pollution are preventive in character and must include not only identification of disease processes and the reduction of the environmental factors which are responsible for disease, but also community education to describe honestly and fairly actual and potential dangers without producing alarm and hysteria. Further educational effort is required to inform industry concerning its responsibilities and the avoidance of hazards which it may be likely to impose upon the public.

A realistic appraisal of the community problem has been stated [7]: "The community must not be misled into believing that complete elimination of air pollution is economically attainable—it definitely is not. All that can be done is to strike a rational balance between the right of industry to reasonable operation, the community's demand for a decent living environment, and the community's need for the economic support

of the industry involved." It seems reasonable to suggest that proper investigative procedures, carried out with the full cooperation of all the agencies and specialties which are concerned, will result in such an even balance.

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Sixth Annual World Health Day on April 7

The founding of the World Health Organization in 1948 will be observed on April 7 for the sixth consecutive year. The 1954 theme of the day is "The Nurse, Pioneer of Health." Emphasis will be put on the world-wide shortage of nurses and the need for recruiting young persons for this profession. Dr. M. G. Candau, director-general of WHO, in announcing the date for World Health Day said, "I . . . hope . . . that one result of the observance of World Health Day 1954 will be that still more young women of character may be led to consider, as the field for their future career, the rewarding profession of nursing."

A Study of College Health Programs for Prospective Teachers

MARJORIE A. C. YOUNG, M.Ed., M.P.H., F.A.P.H.A.

If prospective teachers are to comprehend matters of child health so that they may usefully contribute to that cause, the teacher-training institutions will have to provide more acceptable college health services than most of the 40 that are reported upon in this survey seem to provide.

✢ This report presents the major findings of a health survey of 40 teachers' colleges accredited by the American Association of Colleges for Teacher Education and summarizes recommendations for the development of follow-up programs in these institutions. The complete report * will be issued jointly by the Studies and Standards Committee of the American Association of Colleges for Teacher Education and the National Society for the Prevention of Blindness.

This survey is the first phase of a long-range project aimed at the development of functional, integrated programs of eye health and safety for prospective teachers. The survey was planned, from its inception, in relation to the broad framework of a well rounded college health program. By this means the specific problem would be seen constantly in proper perspective and recommendations for follow-up would be of value to those concerned with other health problems and with the total program of teacher education.

The sample of 40 accredited colleges was selected by the Studies and Standards Committee in such a way as to include large and small schools, single-purpose and multiple-purpose institutions, and colleges in all parts of the United States. The conditions reported herein applied to more than 50,000 full-time students majoring in education who were enrolled annually in the 40 colleges during the years of survey (1949–1951).

All data presented were obtained from individual, confidential, personal interviews with more than 1,000 faculty and staff members and from on-the-spot observations and measurements. The use of the confidential interview technic made it possible to continue discussions until all essential background information was clarified and to cross-check some of the details obtained in the interviews with actual conditions on the campus or in the practice teaching centers.

The survey was designed to obtain a basis for planning realistic follow-up programs, but not to provide the individual colleges with detailed data on over-all campus health conditions. It is hoped that as a result of this report colleges will be induced to undertake, on their own, campuswide health and

* Copies of the complete report may be obtained from the National Society for the Prevention of Blindness, 1790 Broadway, New York 19, N. Y.

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safety surveys which will serve as an integral part of a college's long-range planning for the development of a balanced, functional, health program.

The presence of deficiencies in the specialized areas discussed herein does not warrant the conclusion or generalization that comparable deficiencies exist in other areas of the teacher education program. There are many evidences to prove that such is not the case.

Health Services

The quality and quantity of available health services are major factors in determining the amount of time and kind of attention that will be given to any specific health problem, such as eye health. In this connection, it is revealing to note that six of the 40 colleges did not employ physicians on even a part-time basis *; 19 colleges had one or more part-time physicians; and 15 had one or more full-time physicians.

In general, the physician's time was devoted almost exclusively to routine physical examinations and to handling the clinical cases. The nature and periodicity of physical examinations were markedly variable. Some concepts of the variations that exist can be obtained from an analysis of selected items related directly or indirectly to vision. About one-fifth of the colleges did no vision screening at all during the four undergraduate years and about half the schools screened students only once, at entrance. The methods of administering vision tests were carefully checked against available standards and the findings indicate that much of the testing now being done is below standard in one or more details.

Tabulations and analyses of health records were practically nonexistent, so that it was difficult to obtain accurate data on the number of students with various types of health problems or the number who were in need of follow-up care and counseling.

The follow-up, health counseling phase of the program was the weakest aspect by the admission of those directing the health service program. In the majority of colleges the only planned follow-up procedure was the hurried, postexamination conference with the college physician or nurse. In most colleges there was little evidence of interchange of essential information on student health problems between the health service staff and the instructional and counseling personnel.

Administrative responsibility for the college health program rested chiefly with the physicians and nurses and there was little integration between the service and educational aspects of the program. The widespread and patent lack of cooperative planning suggests the desirability of devising machinery, adapted to the individual campus situation, for exchange of ideas and fundamental information on all aspects of student health. "Regardless of the manner in which these various health activities within the college are organized and the person who is administratively responsible for them, there is a real need for complete coordination and integration of the program as a whole." †

Health Instruction

Any curriculum designed for prospective teachers should have a dual purpose: it should emphasize the knowledge, skills, and attitudes the teachers will need to safeguard their own health, and it should include the professional information and experience which

* In this report, a part-time physician is one who maintains a regular schedule of periodic visits to a college on a daily, weekly, or monthly basis.

† A Health Program for Colleges. Third National Conference on Health in Colleges. New York: National Tuberculosis Association, 1947, p. 23.

teachers must possess in order to protect the health of their future students.

Many courses included in the required curriculum for prospective teachers afford excellent opportunity for logical integration of fundamental material related to the various aspects of health education, including eye health. Important contributions can be made in the courses in biological and physical science, physical education, psychology, growth and development, principles of education, and health education, to name those most commonly found in the undergraduate curriculum. Direct information about the over-all nature and content of courses in these areas was obtained from interviewing several hundred teachers.

Only about half the colleges had a required basic personal health course and only 16 of the 40 colleges required a professionalized course designed to assist prospective teachers to understand their specific functions and responsibilities in the school health program. Therefore, those interested in integrating material on any special area of health, such as eye health, accident prevention, or tuberculosis control, may have to approach their objectives from other curricular directions. Furthermore, the content of courses with identical titles, such as those labeled Personal Health, School Health, or Health Education, was exceedingly variable from college to college and was determined largely by the professional background and experience and the personal interests of those teaching the course.

Prospective teachers do not develop the professional competencies needed for teaching merely through studying about children or about teaching-learning activities suitable for children. Teachers, too, learn by doing. In this connection, a detailed analysis was made of the kinds of health education experiences prospective teachers had in their laboratory school-practice teaching sequence. No firsthand concrete experiences in the three fundamental areas of school health were included on a planned basis in 34 of the 40 colleges, and in the remaining six colleges the experiences were afforded to a limited number of elementary majors. If prospective teachers are to have meaningful experiences in health, teacher training institutions will have to participate with the student teaching centers and their communities in the development of modern, acceptable school-community health programs. In fact, in many areas, such programs will not be developed unless the teachers' colleges assume the initiative.

The critic or supervising teacher is the key to many aspects of the problem. Any program devised to modify existing practices related to eye health or any other aspect of a health education program must reach the critic teachers with specific information designed first to change prevalent attitudes and then to provide up-to-date, objective, factual supporting evidence.

In general, those majoring in elementary education have more and better curricular and practice teaching experiences in the health area than do secondary majors. There was a patent and expressed need on most campuses for more integration among faculty divisions and for effective, ongoing, joint planning of the basic teacher education curriculum. Consideration should be given to the development of autonomous health education departments with overall responsibility for this important phase of the total program and for working out cooperative relationships with all other faculty departments.

Environment

Colleges should be concerned with the promotion of all environmental factors conducive to providing a more healthful life for students. The college

program, with its heavy emphasis on prolonged reading, makes increased demands upon the student's vision. Therefore, the illumination of all study areas was analyzed in considerable detail. Only a very small percentage of the classrooms, laboratories, shops, gymnasiums, and dormitory rooms met the qualitative and quantitative standards commonly accepted by authorities. Deficiencies were almost universally related to poor utilization and maintenance of existing facilities and to lack of knowledge of the fundamental principles of providing a comfortable visual environment. Detailed data on safety programs in shops, laboratories, and gymnasiums were obtained, as were accounts of injuries that had occurred in these areas. Serious eye injuries resulting from activities in all three areas were reported by several colleges; yet, there seemed to be little organized interest or effort in applying effective over-all preventive measures.

Nutritional programs were generally satisfactory. However, there is a definite need for basic student education in this area; a large percentage of students on almost every campus skip breakfast and refuse to eat the balanced meals prepared and served by the college.

Off-campus housing was predominantly substandard; this condition was expected and extenuated because of the prevalent housing shortage that existed everywhere throughout the survey period. In most colleges there is a need for developing an objective instrument for appraising off-campus housing units, the criteria to be realistically determined on the basis of student functions. On such a list, lighting facilities would have high priority, since much close eye work is done in the student rooms during the late evening hours and a large percentage of the students already have defective vision.

A balanced regimen of work and relaxation is essential for the development of a well rounded personality, as well as for maintenance of optimum health. There was evidence to indicate that many prospective teachers do not avail themselves of the recreational opportunities provided by the colleges, although all but one college offered an extensive variety from which the student could choose. Underparticipation in recreational activities and overparticipation in outside, off-campus work were major problems on practically every campus.

Summary

1. There is a definite relationship between the status of the over-all college health and safety program and the status of any of its components, such as eye health. Therefore, attempts to improve the specific component should be related, whenever possible, to the improvement of the total program.

2. There were many opportunities for effective, functional, and logical integration of health and safety activities and experiences in all the college programs studied. These opportunities were unrealized, for the most part, either because of the lack of inter- and intradepartmental cooperation and planning, or because of lack of understanding of the role of health and safety education in the undergraduate teacher education program.

3. Environmental shortcomings were due in considerable measure to lack of funds essential for expansion or modernization of school plants. However, some of the most patent violations of good practice were observed in the newest buildings, indicating that basic health information should be made available to all who are involved in any aspect of school plant planning and management.

4. The development of effective, integrated programs in almost every special field of health, including eye health,

will be expedited when some of the fundamental problems related to teacher education in general are resolved. Among these are:

a. What should be the content and methodology of the basic science courses, biological and physical?

b. What administrative and procedural relationships in health and physical education will produce the most effective program, and what experiences should all prospective teachers have in these two fields?

c. To what extent should the basic principles and method courses be integrated and, when integrated, how can coverage of fundamental material, such as that on vision, be assured for all prospective teachers?

5. There is no idealized, generalized health education program that will meet the needs of all the survey colleges. Each institution must evolve its own master plan, based upon the local college and community resources, needs, and attitudes.

During the next five-year period a follow-up program will be undertaken jointly by the National Society for the Prevention of Blindness and the American Association of Colleges for Teacher Education in an attempt to develop some workable patterns for solving the eye health and safety problems of college students and for integrating the minimum essentials in this area into the basic undergraduate program for prospective teachers.

National Health Council Annual Forum

The annual national health forum of the National Health Council will be held in New York City March 24–26, as the feature of the council's thirty-fourth annual meeting. The discussions participated in by health, education, and personnel leaders from all parts of the United States will center around the changing factors in staffing America's health services.

William P. Shepard, M.D., vice-president of the Metropolitan Life Insurance and past president of the American Public Health Association, has been named chairman of the forum and will guide a program committee planning the meeting.

An Evaluation of Free Health Literature in an Adult Education Program—A Study with Parents of College Students

BEATRICE G. KONHEIM, Ph.D., and DOROTHY NEUHOF NAIMAN, Ph.D.

Will people read and profit by informative health messages? There are certain authorities who say "no," quite flatly. There are others who assume people will. Here, then, is more evidence that under favorable circumstances, at least, people will read and do apparently profit from health booklets.

✣ As teachers of health in a large urban college, the authors have consistently attempted to extend the influence of their courses beyond the college student to his family in the realization that health behavior is very much a "family affair." It is our belief that changes in attitudes and corresponding improvements in behavior can most easily be achieved if the family unit is educated as a whole. One of the technics used to achieve this end has been the distribution of free health literature to parents. A series of studies to determine the effectiveness of this method was initiated in 1948.

The first phase, an attempt to determine the effectiveness of the literature itself and of means of distribution, was completed in 1950.[1, 2] In this study the parents (subjects) were tested before and after a three and one-half month period during which time health literature was distributed to an experimental but not to a control group. It was assumed that changes in level of knowledge could be assessed by comparing pre- and post-test scores on an objective, multiple-choice questionnaire. The experimental group of 165 parents was sent literature in one of two ways: subgroup A received it from their daughters (through classroom distribution) and subgroup B by mail from the New York Department of Health (not identified with the college). The major findings of the study were:

1. A significant score change was achieved by the experimental but not by the control group.
2. Of the parents, 45 per cent in subgroup A and 64 per cent of subgroup B remembered having seen the literature.
3. An average of 66 per cent of the group who recorded having seen the pamphlets reported that they had read them.

With neither of these groups were optimum conditions for the health education of the parents approached. Less than half of subgroup A apparently saw the literature and subgroup B was exposed to only an isolated and completely unreinforced additional stimulus in the health field.

Having determined that the health information level was raised under these inauspicious experimental conditions, the present study was formulated to test the possibilities of educating the family unit under more favorable conditions. In this case simultaneous environmental stimuli were utilized to achieve a possible summation of results.

Method

Early in the term the parents received a letter via their daughters asking

Table 1—Analysis of Response of Women Subjects to Receipt of Pamphlet (Total Women 136)

Pamphlets	Number Who Received	Per cent Who Received	Number Who Threw Away	Number Who Glanced	Number Who Read	Per cent Who Read or Glanced
Overweight	135	99.2	.	21	114	99.2
Allergic to What?	130*	95.5	1	47	80	93.3
Feeling Tiptop?	114*	83.8	3	40	69	80.1
Arthritis	132*	97.0	.	25	105	95.5
Your Heart	131*	96.3	1	20	108	94.1
Cancer	133*	97.7	2	9	120	94.1
Average		94.9				92.6

* Two or three of the women who received the pamphlets did not indicate how they handled them

whether they would care to receive free health literature from time to time. Those who requested it received the following pamphlets by mail from the Metropolitan Life Insurance Company: Overweight, Allergic to What?, Your Heart, Feeling Tiptop?, Arthritis, and Cancer.

This particular assortment was selected because of its presumed subject matter appeal for the parents, the similarity in format and visual appeal of the individual pamphlets and for purposes of comparison with some of those used in the earlier study. Almost every student living at home with parents who could read English brought in a request for the literature. However, it was apparent that the letters either did not reach or did not interest the fathers since few responded.

At approximately the same time the pamphlet was received by the parent, a copy was given to each student and it was discussed in class. The students were asked to record (entirely anonymously and without their parents' knowledge) their parents' reaction to the pamphlet. At the end of the semester the students delivered a sealed envelope to their parents which contained the following: (1) A letter which stressed the anonymity of the replies and which urged honest and frank answers; (2) a questionnaire asking, in regard to each pamphlet, whether it had been received, if it had, whether it had been thrown away, glanced at or read, and if any new or significant facts had been remembered; (3) a series of seven multiple-choice questions based on facts in the pamphlets. (These questions were seven out of 50 used in our first study); and (4) a personal data sheet.

The returned questionnaires represented 85 per cent of those on the mailing list; this included 136 women and 22 men. Since the male group was so small and unrepresentative, we used the responses of the women only for comparison with the women of our earlier study. Of these 136 women, 80 per cent had had at least some high school education.

Results

The first question an experimenter asks in a study such as this is, "Did the particular instrument of education reach the subject?" Table 1 shows that in this respect the procedure was success-

Dr. Konheim is associate professor and Dr. Naiman is assistant professor, Department of Physiology, Health and Hygiene, Hunter College, New York, N. Y. This paper was presented before the Public Health Association of New York City at the Eighty-first Annual Meeting of the American Public Health Association in New York, N. Y., November 9, 1953.

ful. The average of 94.9 per cent of the women reporting they received the pamphlets contrasts sharply with the 64 per cent in subgroup B (to be known as control B) in the first study. It cannot be said at this point that the subjects were actually exposed to the literature merely because they saw it, but the other facts revealed in this table tell the story. It may be seen that an average of 92.6 per cent of the women stated that they had either "glanced at" or "read" the pamphlets. The difference in the appeal of the pamphlets is indicated by the low average of "glancing and reading" for the one pamphlet on the general topic of keeping fit—Feeling Tiptop?—and by comparing the numbers who "glanced at" rather than "read" each pamphlet. It might be postulated that the low interest in Tiptop was due to the fact that the topic of keeping well is not as attractive as that of preventing or recognizing a specific disease, or that a pamphlet of so general a nature did not present the same challenge to interest. The relatively large number who "glanced only" at the allergy pamphlet may reflect the fact that its chief appeal was to allergy sufferers and that those not afflicted do not look forward to developing it as they might to cancer, heart disease, arthritis, or even obesity. An indication that age might be a determining factor in subject interest was the fact that 75 per cent of the parents under 50 reported they "read" rather than "glanced at" the pamphlet on arthritis and 89 per cent of them were over 50.

The contrast in reception of pamphlets by the current experimental group of women and women of control B is shown in Table 2. The pamphlets in this case were similar, the method of distribution the same, but the present experimental group had been alerted to their coming by their daughters who also received the literature. Moreover, the literature arrived with the prestige of the college behind it. It may be noted that the differences in the number who saw and read the pamphlets were statistically significant.

We have thus far satisfied one of Knutson's criteria for evaluation in regard to "the conditions necessary for effectiveness" [3]—a large part of this group was "exposed" to the particular educational medium they received and read. The more critical question, "Did the parents learn?", is more difficult to answer. If it is assumed that the answers to the seven multiple-choice questions may be compared with the answers from the matched group who answered these questions in a setting of 43 others, then it could be deduced that there was

Table 2—Comparison of Reception of Two Pamphlets by Women to Whom Pamphlets Were Mailed in 1948 (Control B) and in 1952–1953 (Experimental) *

Groups	Number of Subjects	Pamphlet on Heart Disease				Pamphlet on Cancer			
		Received		Read †		Received		Read	
		Number	Per cent of Total Sent	Number	Per cent of Total Sent	Number	Per cent of Total Sent	Number	Per cent of Total Sent
Control (B)	53	33	62	26	49	43	81	31	58.5
Experimental	136	131	96	128	94	133	98	129	95.0
p ‡ value on comparison of group response			<1		<1		<2		<1

* Groups matched in education $X^2 = 0.3$

† "Read" includes "read and glanced" of both groups

‡ p is calculated by X^2 method on comparison of control and experimental groups' reactions to the pamphlets

Table 3—Comparison of Answers of Women of Control (AB) and Experimental Groups * to Seven Multiple-Choice Questions

Subject of Questions	Correct Answers				t on Comparison of Answers	p
	Control (AB) (Total 97)		Experimental (Total 133) †			
	Number	Per cent of Total	Number	Per cent of Total		
1. That early cancer is rarely painful	56	58	85	64	0.92	>1
2. That hypertension is the most common form of circulatory disorder in middle life	53	55	95	72	3.30	<1
3. That diabetes occurs most frequently in people who have been overweight	79	82	114	86	1.45	>1
4. That a patient with rheumatic fever may be left with a heart lesion	78	81	120	90	2.61	<1
5. That x-rays are an effective way of treating skin cancer	38	39	92	69	5.04	<1
6. That the most frequent cause of death in the United States is heart disease	54	56	105	79	4.25	<1
7. That a calorie is a unit of heat	29	30	113	85	9.8	<1

* Groups matched on education $X^2 = 0.41$
† 3 incomplete returns

a significant increase in knowledge in regard to five of these seven questions. It may be seen from Table 3 that there was no significant increase in right answers to the questions on the likelihood of early cancer being painful or to the relationship between a past condition of overweight and diabetes. Similar results on these were obtained in the first study. It is possible that the stress in the literature on the possible painless nature of early cancer made our "pamphlet readers" say it was "never" rather than "rarely" painful. It is clear that these two questions either were not good questions to show the information gained in the pamphlet or that the facts we were testing were not clearly presented in the pamphlets.

Another method of evaluating the increase in knowledge is from the statements of the parents. Table 4 reveals

Table 4—Response of Subjects (158 Women and Men) to Material in Pamphlets

Pamphlet	Number Who Remembered New or Important Fact	Per cent of Total Who Remembered New or Important Fact
Overweight	68	43
Allergic to What?	46	29
Feeling Tiptop?	32	20
Arthritis	60	38
Your Heart	64	41
Cancer	74	47

that the standing of the pamphlets in regard to "new facts" is similar to the rating on interest value deduced from Table 1. Again, the literature on Overweight, Cancer, Heart Disease, and Arthritis rated high and the pamphlets Tiptop and Allergy lower. The facts in the pamphlet which apparently impressed the greatest number of people and which were recurrent in their comments were as follows: the table on the caloric value of foods and specific diet suggestions, the effects of overweight, the emotional factor in allergy and arthritis, the caution concerning moderation for those suffering from heart disease, the value of early diagnosis for cancer and the symptoms. The fact that approximately 40 per cent of our subjects remembered a fact from four of the six pamphlets even after three months is encouraging. The quality of the comments indicated that this literature has met another of the criteria set by Knutson,[4] namely, that the subjects "understand the point of the message." Still another method of assaying possible learning is to study the amount of discussion the parents had with their daughters on these subjects. This becomes an avenue of learning, particularly since the students had the benefit of classroom teaching. Over 275 separate topics of conversation were recorded by the parent group and confirmed by the students in their reports. The 105 listing for "diet and overweight" far outweighed any other single topic. Some of these discussions extended over many days, according to the student and parent responses. The pamphlet which was least discussed with the daughters was arthritis.

The answer to the key question, "Did the program influence behavior?", must be speculative. The recent study of the Pelican Series in North Carolina [5] confirms the judgment that it is most hazardous to try to show the influence of a single stimulus on behavior. Nyswander [6] has reminded us of the implications to health educators of the studies revealing the great difficulty in changing fixed attitudes even by high-powered publicity methods. There is, however, some concrete evidence of effectiveness of educational campaigns in promoting desirable behavior in relation to health problems,[7] and all of us know that habits do change among groups even in relation to preventive medicine. Of our women subjects, 42 per cent stated that they had changed their habits in regard to eating, and 27 per cent in regard to visiting the doctor within the few months preceding the questionnaire. It must be realized in weighing these figures that the questions were leading ones and the subjects may have been expressing a wish rather than an act. But the documentation of the reports by many of the parents giving exact numbers of pounds they had lost lends credence to their statements. It is reasonable to believe that the pamphlet was the trigger mechanism to whatever activity actually took place.

An educational effort of this type which operates from a single community source is a small part of the total environmental stimuli. It must, therefore, leave the subject well conditioned to further community efforts if it is to be considered successful. In this respect the project appeared to be successful. Over 70 per cent of our subjects indicated that they would like additional literature on health topics and approximately 40 per cent said that they were eager for educational material on a variety of academic and practical subjects.

Discussion

We have presented the results and attempted to evaluate a health educational program for the parents of college students of hygiene. Educators in a nonresident urban college have a special

opportunity to extend their influence beyond the confines of the classroom to the community. A large tax-supported educational institution, such as ours, has a unique privilege and perhaps a responsibility to serve as a fountainhead of influence for adult education—certainly, in those fields which relate directly to human welfare. Not only is a program of the type that has been initiated a contribution to the community, but it is of value to our own students. One of the educational aims at college level is to develop independent, thoughtful citizens. Yet, we know that in matters pertaining to health, the attitudes and, above all, practices of the parent members of the family are of prime importance in influencing the behavior of the student.

Our results justify the conclusions that through this program literature on health was introduced into the home and that a considerable amount has been read. The experience we have had in these two studies has emphasized the importance of multiple environmental stimuli. During our first study the time of reception of the pamphlet on diabetes coincided with the repeated announcement of this particular pamphlet on the radio. The fact that more of the subjects remembered "seeing" and more stated that they "read" this pamphlet than any other may have been due in part to these simultaneous stimuli. The response to the pamphlet on overweight in this current study probably indicates the readiness of our particular subjects. It will be remembered that throughout last year the subject of overweight received widespread publicity in the press, magazines, radio, and television. By every standard—number of subjects reporting having "received," number reporting having "read," number stating they had "remembered facts of importance," and number of "home discussions" reported—this pamphlet stood high in interest value. Reinstein's [6] report on the number of exposures of those taking advantage of an x-ray service for TB in contrast to those who did not may be indicative of the effectiveness of multiple stimuli in influencing behavior. The major difference in our current test situation and the previous control study which we used for comparison was the presence of continuous reinforcement. Of course, not every health educator is fortunate enough to be able to conduct an educational experiment with an individual catalytic agent in each home.

While it can be stated with relative certainty that the subjects were exposed to the literature, it cannot be stated with the same assurance that the parent subjects learned or changed their behavior. There are some strong indications, however, that suggest that this was the case. The scores on the objective multiple-choice questions when compared with a matched control, the statements by the parents of facts remembered, and the family discussions reported, tend to support the assumption that the parents learned. It is hoped that these many conversations about health not only served to exchange ideas and bring some of the classroom teaching into the home but that they served as a springboard for other discussions of mutual interest. The parents' documented statements, corroborated in many cases by their daughters, concerning their "weight loss" and "habits of visiting the doctor" may be an indication of the change in behavior.

Summary

Six pieces of free health literature were mailed within a three and one-half months' period to 158 parents (136 mothers, 22 fathers) of students taking a college course in hygiene. At the time the literature was received the same pamphlet was discussed and distributed

to the students (daughters of subjects). The results are:

1. An average of 94.9 per cent of the women acknowledged the receipt of the pamphlet.

2. An average of 92.6 per cent of the women stated that they had "glanced at" or "read" each pamphlet.

3. There were some evidences of learning:

a. The groups received statistically higher scores on five out of seven multiple-choice questions than did the control group.

b. The percentage of parents stating that they had remembered a new or important fact ranged from 47 per cent for the Cancer to 20 per cent for the Tiptop pamphlet.

c. Over 275 separate topics of conversation between parents and students on health subjects were reported.

4. Of the women, 42 per cent stated that they had changed their eating habits since the inception of the program and 27 per cent indicated that they had changed their habits of visiting the doctor.

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Current Child Life Studies

The Clearinghouse for Research in Child Life, first organized by the U. S. Children's Bureau in 1948, has published its "Research Relating to Children: An Inventory of Studies in Progress, Bulletin II." It lists in six main categories 1,000 research projects currently in progress almost entirely in the United States. Forty per cent of the current studies are classified under physical health and disease, nearly one-fourth under growth and development, and about one-tenth under education. The remaining studies are about evenly divided among pregnancy and the newborn, mental health and emotional disorders, social, economic, and cultural factors.

Each study is described briefly as to purpose, subjects, methods of investigation, duration, and investigators. The volume, designed for the use of other investigators, lists projects in progress between January and October, 1952. Six previous publications had reported research in progress December, 1948–December, 1951. Research workers wishing to register studies or ask for information should write to Clearinghouse for Research in Child Life, U. S. Children's Bureau, Washington 25, D. C.

Relationship of Research and Education in Agriculture to International Nutrition Problems

HERRELL DeGRAFF, Ph.D.

The wholesome understanding of and tolerance for other people's way of doing things, which this paper fosters, may prove a rather novel experience for some of us. Though the concerns of the paper are with malnutrition and world food production, each reader may find help in it in comprehending foreign practices in his own particular sphere of interest.

✣ Never in man's history has the world produced enough food for all its population to have a nutritionally adequate diet. That fact is so well established as to need neither further proof nor qualification. On the other hand, the picture is not all dark. Bennett has established that world food production over the past several decades not only has provided for the increase in population but has made possible a significant improvement in world-average diet quality as well.*

Greater food production over the years has come from two sources: An increase in cultivated land, some in all parts of the world, but most of it in New World areas; and a more significant increase in the intensity of farming and the application of improved soil science and biological science on lands already in cultivation. Important applications of science to agriculture had their origins in Europe a little more than a century ago, and in the more advanced areas of the world have continued in ever-rising tempo. They have found expression in several ways, such as (a) more intensive crop rotations that increase the food yield per acre, (b) genetic improvement in both crops and livestock pointed toward the development of higher-yielding types, (c) more effective practices in maintaining soil fertility and in livestock feeding in order to realize the potentials bred into the crops and animals, and (d) better control of the pests and disease that attack food crops and livestock. These facts are important to recognize because future increases in food production, to provide both for a further increase in population and for improvement in prevailing diets, will come likewise from additional advances in the application of science to farming in far greater measure than from new land brought into cultivation.

Let us look at the United States for illustration and for essential background to some of the problems of other areas. Since the end of World War I, 35 years ago, our cropland acreage has remained essentially unchanged. During the same period our population has increased 50 per cent—but the 160 millions of us are now enjoying the benefits

* Bennett, M. K. Population and Food Supply—The Current Scare. Scientific Monthly 60:17-26 (Jan.), 1949.

Dr. DeGraff is Babcock professor of food economics, Cornell University School of Nutrition, Ithaca, N. Y. This paper was presented before the Food and Nutrition Section of the American Public Health Association at the Eighty-first Annual Meeting in New York, N. Y., November 10, 1953.

of a better diet than 106 millions obtained from the same crop acreage a generation ago. The food for 53 million new citizens and the dietary improvement for all of us has come largely from a 36 per cent increase in average crop yields per acre, from a 15 per cent increase in our flocks and herds of food-producing livestock, and from a 46 per cent increase in production per animal unit of livestock raised. There is no other explanation of these increases except the ever greater application of science to the production of plants and animals. Roughly one-third of our present food supply is the direct result of scientific gains in farming made during the past 35 years.

For the years ahead it is not to be expected that we will have any significantly greater crop acreage in the United States. On the other hand, our population obviously will increase considerably. And yet there is no danger anywhere in the foreseeable future that we will run into an inadequate food supply. My reason for this statement is that good farm land is not fixed in its productive capacity. Rather its capacity is always a function of the amount and the character of the soil science and the biological science applied to it. That is to say, its productive capacity is expansible through science. It is in effect stretched through science—and always has more stretch left in it as additional scientific advances are accomplished and applied.

At the moment we are said to be dealing with agricultural surpluses in the United States. But even if it is true, it is only a temporary situation. We will need much more food in the future, and it will come from two sources — two sources that really are parts of the same: a greater application of scientific principles already known; and still further research to find new scientific principles and the means to apply them.

In the United States we have been, we are, and we will be extremely fortunate that a high level of basic education and scientific understanding prevails among our farmers, enabling them to take and to use the findings of our research scientists. We are fortunate also to have in our agricultural experiment stations and colleges a group of highly trained people who know and are concerned with farm problems, and who do their work with its significance to the farmer uppermost in their minds.

If this then is the story and the outlook for our food supply, why is it not equally the story for other parts of the world? That is, of course, a question that has many aspects and many answers. It has been said—and I believe with complete accuracy—that an adequate body of technical scientific knowledge already exists, if and when applied, to provide a nutritionally adequate diet from the lands already in cultivation for every descendant of Adam and Eve now extant on the face of the globe. Thus the problem is not lack of knowledge, it is lack of application.

Located in the Andean highlands, Colombia is a country that is making great economic progress, especially in its urban areas. But food is not abundant in Colombia, as it should be from the wealth of land resources the country has in relation to its population. Food prices are fantastically high compared to the incomes of all but a handful of privileged families. About two-thirds of the income of a wage-earner family goes for a nutritively meager diet. There is no question that food supplies and food prices are retarding the economic development of the country.

Near the capital city of Bogotá, at an elevation of from 8,000 to 9,000 feet above sea level, are a series of altiplanos totaling a half-million acres. It is for the most part rich land blessed with a climate that permits two harvests a year. If this land were used in a balanced system of crop and livestock farming in

which there would be reasonably full application of known agricultural science, it could easily provide a nutritionally adequate diet for a million people. Its present production is about one-quarter of this potential.

Most of this land is held in farm units of 100–600 acres—a very favorable size for scientific crop and livestock agriculture. But few of the farms are owned by persons who live on them and work them. The great majority of the owners live in the capital city or at even greater distance, and visit their farms only occasionally. A majordomo system of management prevails, and most of the majordomos are men of little education or training who are hired at very low wages. When questioned about the system the owners explain that they give a great deal of personal attention to their farms, that they do the managing, make all decisions, lay out the work, and closely supervise the majordomos to see that they carry out the orders. They honestly believe what they say, but many of these owners do not visit their farms more than once a week. They do plan the farm organization and loosely direct the operation, but the farming plans they develop must be limited to such as can be carried out by majordomos of very low average capacity. These men can do traditional things in traditional ways. They have little capacity to find new ways of doing new things, to experiment, to test new technics, and the responsibilities of applying modern science to farm operation are completely beyond them. If an owner attempts a system of farming beyond the capabilities of his foreman the result would be failure. And thus in practice, regardless of what the owners say, progress in the large proportion of Colombian agriculture that has this system of management is limited to the capacities of cheap, inept majordomos. The result is that land of extremely high productive potential remains largely in poorly managed pastures and slow-gaining beef animals—a system of farming in which the majordomos can make the fewest and least costly mistakes. It is a low-return system for the owner, but it is also the surest return and carries the least risk of loss. And while it may be good for the owner it is highly disadvantageous to the Colombian nation which badly needs more food.

Another reason why the system persists is that real estate taxes are so low as to impose little penalty on an owner even if he does not use his land at all. The quickest way to increase food production, and thus dietary levels, in this particular situation would be to increase real estate taxes from 10 to 20 times the present level. An owner then would have to use his land more nearly to its production potential or sell out and let someone take over who would. I do not mean to imply that Colombia is not making agricultural progress. It is, on farms under a different type of management. What I have described is one localized situation which is impeding the application of known technics for increasing food production. It is just such lack of application, rather than lack of available knowledge, that is the major limitation to greater food production around the world.

Another of our neighboring American republics, Mexico, furnishes another kind of illustration. Compared with Colombia, Mexico had a much greater concentration of land in the hands of a few owners who gave little attention to their farming. The problem became so serious that the Revolution of 1910–1921 became essentially a land-reform revolution. Since the mid-1920's the Mexican government has expropriated about half the farm land of the country and doled it out in small parcels to formerly landless peasants. These are people who for the most part are illiterate and superstitious, whose work for generations has been under the

close supervision of someone else, and who have little talent for assuming the problems of self-responsible management. Their little parcels of land are so small and of such low productivity that a system of self-sufficing rather than commercial farming is almost forced upon them. And to these factors must be added, particularly in the more isolated areas of the country, the fact that the whole history and culture of the people teach them to be extremely cautious in making changes in farming methods. Education and the results of scientific research in agriculture have reached few indeed among such people, nor are likely to for some time.

The United States is about 85 per cent nonagricultural. Hardly more than a seventh of our labor force produces our abundant food. Above all other reaons this has been possible because of universal education and scientific research applied to production problems. In this environment we look upon change as normal. We are prone to believe that any technic which has long continued is somehow out of date, even if we are not sure how we would change it. But in the world as a whole some 60 per cent of the population produce their living directly from the land, and about two-thirds of the world's farmers operate primarily on a self-sufficing rather than a commercial basis. Educational levels are low among these millions of people—illiteracy predominates. They are difficult to reach and still more difficult to influence. A higher level of general education, and then agricultural education must reach many more of the farmers of the world before food production will be notably increased and nutritional problems minimized. And in reaching this goal the predominantly illiterate, culturally isolated, largely self-sufficing peasant groups of the world pose complex problems. From our kind of society we will not understand them at all or do any good among them until we grasp the basic fact that even their motivations differ from ours. We begin by accepting change as normal; they regard it with misgiving. We look upon obstacles to our desires as challenges or even opportunities; they accept them with resignation. We are motivated by commercial considerations; their stronger motivation is survival. Our margin above subsistence encourages us to take calculated risks; and theirs is so narrow that risk must be avoided.

To those of us looking in from the outside, such native groups of farmers seem tradition-bound almost to the point of obstinacy. Actually what we are seeing is one indication of the gulf between their cultural conditioning and ours. Their thought is not so much (as we are quick to assume) that "if a certain way was good enough for grandfather it is good enough for me." Much more nearly it is, "Father and grandfather and earlier generations of my ancestors did it this way and they survived. If I do it the same way I will survive, and my children after me." Motivated in this manner they are understandably suspicious of change. Except as we see and understand and work in terms of these attitudes, so at contrast with our own, we cannot extend our production methods or begin to make our potential contribution to a more productive agriculture among them.

Admittedly, I have been discussing some of the most isolated and least advanced farming groups. We must not forget their numbers are very large. On the other hand, many regions of the world and many groups of farmers from whom greater food production is vital are much advanced beyond this level of primitiveness. These are farmers among whom the process of change is already well established and who will willingly accept, if not eagerly seek, further change and improvement. For example, I visited this summer a group

of Japanese immigrant farmers in the Cauca Valley of western Colombia—a region of phenomenal potential productivity. These people have not yet bought land. They prefer to rent. They like to lease land that has been many years in pasture and raise corn and beans on it. Their practice is never to rent the same land for longer than five years, because over this period the yields decline. Of course yields go down because no practices are observed to maintain soil fertility. Preliminary experiments have shown that as little as 40 pounds of nitrogen per acre will give a 25 per cent rebound in yields after the Japanese have given up their lease. There is no reason to doubt that further study of soil maintenance in this particular area will make possible systems of crop and livestock farming that will maintain high yields indefinitely.

And this illustration puts new light on a basic point made previously. A sufficient body of technical knowledge is available which, if applied, would adequately feed all the world's population. The application, however, requires an enormous amount of what we might call localized research through which the basic knowledge can be adapted to locally varying conditions. It is not possible to generalize about agriculture. It is too complex, and subject to too many variables. Soils differ, temperature, moisture, and day-lengths differ. Pests and diseases differ. Local applications of the same basic scientific principles differ widely. This kind of localized research is necessary in all regions of the world, and in almost infinite subregions. It is only this kind of research that will provide answers for local questions and problems. Much more of it is necessary, in Colombia, in Mexico, in fact almost everywhere. Localized improvements in food production hinge upon it, for any country, or the world, is only the sum of its localities, and world food production is the sum of what its individual farmers produce.

American Cancer Society Fellowships

Through a grant from the American Cancer Society, Yale University offers several predoctoral and postdoctoral fellowships to promote training and research in "laboratory, clinical and epidemiological research" requiring a "thorough knowledge of statistical methods as applied to the design of experiments and the collection and analysis of data."

Prerequisite for the predoctoral fellowships is a baccalaureate degree and a knowledge of biology, chemistry, physics, and mathematics. The fellowships are granted for three years with an annual stipend of $2,000 and some adjustment for dependents. Candidates for the postdoctoral fellowships must have a doctorate in medicine, philosophy, or science. Fellowships with an annual stipend of $3,000–$4,500 are awarded for one year and may be renewed for two additional years.

Application blanks, which must be mailed by February 28, 1954, for the 1954–1955 fellowships may be obtained from the dean of the Graduate School, Yale University, New Haven, Conn. Further information from Professor E. Cuyler Hammond, director of graduate studies in biometry.

Training Programs in School Health Service

ROBERT W. CULBERT, M.D., F.A.P.H.A., HAROLD JACOBZINER, M.D., F.A.P.H.A., and PHILIP OLLSTEIN, M.D., F.A.P.H.A.

School child health cannot be legislated into being—as unhappy experience long ago demonstrated. Neither can generous municipal appropriations buy it. Only when physicians, nurses, and teachers have broad understanding and the vision and the will to work together is the goal of good health likely to be achieved. How one city promotes this all essential working together is reported in illuminating detail.

✣ The general tendency in school health service is away from the routine annual health examination of pupils. There are many reasons why this is so, not the least among them being that many school physicians seriously doubt the efficacy of attempting to single out those who require medical follow-up of significant defects found on a mass basis. No one questions the desirability of a thorough annual physical check-up with parents present and a sound follow-up program of health problems discovered. In practice, however, it is well known that this situation does not obtain. The reasons are many but principal among them are lack of qualified medical and nursing personnel and lack of adequate budgetary appropriations. The problem of supplying a school health service is a complex one and because of this there is a variety of state and local laws on the subject concerned mainly with the number of examinations to be done within the elementary school period.

There is a growing tendency to regard the finding and following of the child with a health problem as the primary objective of school health service, with a decreasing emphasis on the periodicity of routine examinations. The Astoria School Health Study is an example of this.[1-4] It has been emphasized, and requires repeated emphasis, that programs based on this premise must have the following minimal attributes to operate successfully: physicians well trained in school health practice; public health nurses with special orientation in school health service; and teachers with training in pupil health observation.

While it may appear to be stating the obvious, a little inquiry into school health service programs in the United States will disclose that the above requirements are not easily met. When a deficiency occurs in any one of the three, the whole program suffers. Recognizing these facts, efforts have been made in New York City in the past several years to develop a teaching program which would give the school physician the basic understanding of the principles of school health service in a practical, useful fashion. One may ask what special qualifications are required of a school physician which the average physician does not possess. It may be assumed that in most instances he is a general practitioner who includes care of children as part of his regular activities.[5]

Three things appear to stand out to warrant extra time being spent in training the school physician. First, the vast majority of pupils he will see are presumably well children. They do not come to the medical room with complaints; rather they and their parents usually present themselves because of legal requirements. Thus instead of

seeking the cause for a complaint, the school doctor must discover and evaluate deviations or potential deviations from the normal. In short, it may be said the examination is health—rather than disease—centered. Therefore, the kind of things looked for, the history taking and above all the advice given a parent will have many implications as to the future health care of the child particularly as his development, emotional and physical, is affected by attendance at school. Second, the school physician must be familiar with screening technics, such as those for vision and hearing, and be able to evaluate the results of such tests for the educational staff. He gets relatively little of this experience in private practice. Third, he must be familiar not only with the school environment, physical plant and sanitary equipment with respect to their over-all effect on school children, but must be thoroughly familiar with the many kinds of physical education programs, directed and otherwise, encountered in the day-to-day activities of the child.

The subject of school environment and physical activities has many complex ramifications. The question of special class placement for the handicapped, the limitations of physical activities for the debilitated child, the routine examinations for competitive sports, in fact the definition of competitive sports, all of these come at one time or another to the school physicians for solution. That these subjects require special knowledge is manifest by the not infrequently ill-advised restrictions placed on a child by the family physician who does not have an over-all familiarity with the school. Therefore, the goal in orientation must be to inculcate a public health attitude toward the health problems of the school age child while at the same time retaining the individual contact with the parent and child, a skill which he already has to a high degree. This must never be dropped in school health practice but the public health implication, the knowledge of school and community resources, must be inculcated if the physician is to be successfully oriented in school health service. Many of the clinical problems, when examined from the point of view of the school environment, will appear much broader in their implications than when seen purely as a clinical entity, per se, for which simple medication may be prescribed. For example, the child with rheumatic heart disease may present a relatively clear picture from the point of view of hospital treatment, medication, and recreation, but how should he be handled when he is ready to return to school? Recommendations may be made by the treatment agency as to limitation of activity. How and to what degree can this be arranged and supervised? Who shall see that follow-up of the case is carried out? It is clear from these questions that the school doctor and nurse must of necessity become involved in the health supervision of such a child attending school. There will be communication with the child's doctor or treatment agency, the classroom teacher, the handicapped class teacher, and the parent to insure the proper interpretation of the treatment agency's recommendations to the teaching staff. So it has become increasingly clear that for a school health service program to function well the physician must have sound orientation before he starts. It has been found entirely feasible to develop such an orientation program at

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relatively little public expense. Moreover, it has been demonstrated that such a program is readily accepted by the physician. The reasons for this will be apparent as the program is described.

Experience indicates that it takes about five to six weeks (five 3-hour sessions per week) to cover the ground. Obviously the program makes no claim to teach the physician clinical medicine.

Table 1—Physicians' Preservice Course

Session—3 hours each:	
1. Historical Development General Administration	Professor of Public Health, Cornell Director, Bureau of School Health
2. Function of School Physician	Consultant, School Health (Asst. Professor, Cornell)
3. Function of Nurse	Consultant, Bureau of Nursing
4. Function of Teacher	Asst. Supt., Board of Education
5. Demonstration—Classroom Parent Conference and Examination of Pupils (elementary)	Supervising Physician, School Health
6. Health Service—Secondary Schools	Supervising Physician, Dept. of Health
7. Field Observation Elementary and Secondary Schools	Principals, Board of Education Supervising Physicians, Dept. of Health
8. Review	Staff
9. Normal Growth and Development Physical, School Age Through Adolescence	Assoc. Professor of Pediatrics, NYU and Bellevue Medical Center
10. Emotional Development—School Age Through Adolescence Functions of Bureau of Child Guidance	Child Psychiatrist, Board of Education Psychologist, Board of Education
11. Communicable Diseases, Prevention and Control	Director, Bureau of Preventable Diseases, Dept. of Health
12. School Dental Health Programs	Director, Bureau of Dentistry, Dept. of Health
13. Handicapped Child of School Age and His Problems	Director, Bureau for Handicapped, Dept. of Health
14. Common Handicaps Educational Placement Cardiac Orthopedic Cerebral palsy	 Consultant Cardiologist, Dept. of Health " Orthopedist, " " " " " " " "
15. Common Handicaps Educational Placement Visual Auditory	 Consultant Ophthalmologist, Dept. Health " Otologist, " "
16. Epilepsy in School Age Child Mental Retardation Program Elementary Schools	Child Psychiatrist, Board of Education Supervisor, Board of Education
17. Review	Teaching Staff
18. Working Paper Clinics	Supervising Physician, Dept. of Health
19. to 31. Field Assignments to Elementary and Secondary Schools and Working Paper Clinics	 Supervising Physicians, Dept. of Health School Physicians, Dept. of Health
32. Review	Teaching Staff

Rather, as the name implies, it attempts to orient medical knowledge and experience already acquired to the health supervision of the child at school and, in addition, acquaint him with the school as a dynamic organism. The orientation course is divided into two major parts: 1. lecture, demonstration, and conference periods; and 2. field observation and actual participation in work (Table 1).

The subjects covered in part 1 include instruction in:

Functions of the physician, nurse, and teacher in school health service with formal demonstration of history taking, physical examination, and parent-doctor conference as performed in the school medical room

Normal physical and emotional growth and development and the influence of the school environment

The educational placement of the physically handicapped child including the cerebral palsied

The educational placement of the emotionally and mentally handicapped child

Communicable diseases of childhood and their relation to school attendance

The school dental program

Health and physical education programs in the schools

Administrative aspects and technical instructions

The faculty is drawn from the Department of Health, Board of Education, and medical schools in the city. The method of teaching is by lecture and conference—informal in character, always with ample opportunity for the student physician to comment or ask questions. In addition, four review sessions are provided at appropriate intervals at which the trainee has complete freedom for discussion, questions, and comment. Experience indicates that these review sessions are of the greatest value in assisting the physician in gaining a clear and broad understanding of school health practice. Because they provide opportunity for fresh unrestricted critical appraisal of the service as seen by the newly appointed physician, they are invaluable to the staff in administering the program and in modifying the course so as to meet the needs of the new physician in the field. The doctor is made to feel that he is a part of the service.

In part 2 of the teaching program, the physician actually does the work of the doctor in the school. He is supervised directly by the physician regularly assigned to the school. In this way he becomes thoroughly familiar with field practice, learns the use of forms, how to refer, relationships with education staff and many other features of school health service which can only be learned by practice, however much preliminary indoctrination is given. Following the course, and after a school physician has been on regular assignment for about four months, occasional review sessions are held to determine how effective training has been and to receive further suggestions about future conduct of the course.

For the past five years, two such courses per year have been given. The average number of physicians attending is from 15 to 20 per course. Larger numbers are not desirable since informal free discussion cannot be carried out advantageously with the larger group. There has been a 10 per cent to 20 per cent turnover in medical personnel per year during the five-year period and 160 physicians have attended the course in all. Unsolicited comment from school personnel and district health officers uniformly indorses the course as producing a superior type of school health physician. The doctors themselves frequently remark that the material learned and experience obtained in the school health service have been helpful to them in their private practices in dealing with parents and children.

Even with the experience thus far gained in presenting a course of this nature, it is not felt that the ultimate

has been reached. For during the short span of five years, emphases and priorities in school health service have changed.[6] Such genuine changes as occur must necessarily be reflected in the course content. There is no doubt, however, that this approach to the improvement in quality of school health practice is sound and pays generous dividends in better health service to children of school age.

Teacher Observation Program

Repeatedly, to the point of monotony, it has been stated that the classroom teacher is the "key person" in a school health service program, meaning of course that by her keen clinical observation of "health behavior" in the classroom she is able to discover the child presenting a health problem either acute or less obvious. While there can be little argument that such a situation is highly desirable one may reasonably ask how effectively the teacher with her increasing responsibilities in educational work has the time, inclination, or theoretical ability to perform such screening observations. Where does the newly appointed teacher have the opportunity to learn how to observe and judge a child's health behavior? It is true that with the passing years many teachers do acquire a knack of spotting the child with health deviations, but it is probably also true that many do not. It would seem that if the teacher had some direct contact with the health service in her school she would learn of its advantages and limitations, and with her interest aroused thus be in a position to use it intelligently in making appropriate referrals to the nurse or physician. With this thought in mind a rather simple program was developed whereby student teachers entering their final year of training would have an opportunity to learn the fundamentals of school health service. It has been received enthusiastically by the colleges * and is now entering its fourth year of operation.

Briefly the program is as follows: Just prior to the assignment of the fourth-year student teachers to field work in the public schools throughout New York City and adjacent counties they attend a two-hour conference at which full-time members of the Bureaus of School Health and Nursing present the salient features of the health service as they relate to the classroom teacher. It is essentially an orientation in the general subject of health observation of the school pupil, the part the school physician and nurse have and the teacher's role in health supervision. Provision is then made so that at some point during her field assignment the student teacher observes one doctor's session and one teacher-nurse classroom conference. Upon completion of her field work and return to the college, a two-hour review session is held again with the Department of Health staff who gave the original orientation. All in all the program takes about 9 to 10 hours. It is well integrated into the curriculum of the student so that no inconvenience is encountered. During the three years that the program has been operating more than 1,000 student teachers have had the course. Simple and brief though it is, a remarkable amount of solid information appears to have been gained by the students from this experience. This is evident particularly by the kinds of questions asked and comments of the students when they attend the review sessions. It can reasonably be expected that when they take up their assignments as teachers they will at least have an awareness of what the school health service is and of their own part in the program. One may modestly suggest that more experience of this kind when made available to

* Programs now in operation at College of the City of New York, Hunter College, and Queens College.

student teachers will, in the long run, truly produce the "key person" in the school health program.

Medical Student Teaching

Over the past 25 years there has occurred a marked change in the medical school curricula both as to methods of teaching and content material. The ever broadening field of public health has shared in this change. New topics have been introduced into the undergraduate medical curricula as their importance became manifest while some of the older ones were dropped. Recognizing that the health of the school age child is a matter of increasing concern, the subject has been included as part of public health teaching by the five medical schools of New York City.* A similar program has recently been reported at the University of Washington.[7] As in the program for student teachers, the course here is short and concise with the purpose of familiarizing the medical student with the major objectives and practices of a school health service. The students are given preliminary orientation in the subject by one lecture or conference followed by direct observation of a medical session at the schools. Subsequent review is carried on at the medical schools often in connection with related subjects in the field of maternal and child hygiene. It is a cooperative activity shared in by the professors of public health at the medical schools, the physicians of the Bureau of School Health, and district health officers. While no claim could be made that this course orients him fully in school health, the student does learn basic facts which will be useful to him later on in practice and at the same time be advantageous to school educational and medical staff.

Seminars and Conferences for School Physicians

While inservice training programs give us assurance of efficient school physicians it has been found advantageous to make available to them seminars on topics of current interest which they may attend on a voluntary basis. This usually takes the form of six to eight two-hour sessions consisting of lectures followed by discussion periods. For the past two years the emotional development and behavior patterns of school children have been the center of interest so that seminars on this topic have been held each year. Prior to that, physical growth and development of the school age child was presented. We were fortunate in having eminent specialists with the know-how of teaching to conduct these seminars. The presentation of one broad subject in continuity seems to be more attractive to school physicians than a series of lectures on unrelated topics.

Occasions arise when briefing on immediate problems must be given. For example, it was necessary about two years ago to give a short series of lectures on narcotic usage among students as one part of a program developed to attack this problem.[8] While these seminars help to sustain interest in school health service they are not in themselves sufficient to guarantee the best in school health practice. A notably useful device to give the individual physician a personal interest in his work is to have regular monthly meetings of local groups of school physicians at which they present cases of medical and public health interest which they encounter in the school medical room. The subject matter for discussion is determined by the physicians themselves, the only limiting feature being that it pertain in

* College of Physicians and Surgeons, Columbia
New York University and Bellevue
Cornell Medical College
New York Medical College
New York State College of Medicine

Table 2—Training Programs, School Health Service

		No. of Sessions	Hrs./ Sessions
1. Student	Medical—conference—observation—review	4	2
	Teacher— " " "	4	2
2. Inservice	School Physician—training program—6 weeks	32	3
	Child and School Health Physicians—lecture courses, early childhood through adolescence	8	2
3. Graduate	Columbia School of Public Health Students—theory and practice of school health including field observation for physicians, nurses, public health educators, health officers, etc.	8	3

some fashion to solving health problems of the school age child. Often they invite a specialist in an appropriate medical subject to participate.

Graduate School Health Course

At the School of Public Health, Columbia University, a course in school health service theory and practice staffed by members of the Bureau of School Health is given yearly. Those attending, a widely varied group consisting of nurses, physicians, dentists, public health educators, health officers, etc., are regularly scheduled to observe both the elementary and secondary health programs in the schools as part of the course. The aims and content of this course are of necessity different from that for newly appointed school physicians but the broad general principles of a school health service program are included in both (Table 2).

Summary

Instructional and training programs in theory and practice of school health service, elementary and secondary, have been described. The programs are adapted to the needs and time available for personnel concerned, namely, the student teacher, the medical student, the newly employed school physician, and the graduate public health student. The training of the public health nurse in school health service, obviously of the greatest importance, has not been included in this paper since it will be described elsewhere. It is part of an overall six months' inservice training given to all newly appointed nurses.

It will thus be seen that for a well rounded instructional or orientation course in school health service with a view to the future as well as to immediate needs, not only the newly employed physician, but the future school teacher, the medical student, and the public health nurse must be grounded in at least basic understanding of its purpose and importance in the community. It is only by patiently laying the groundwork that finally a sound and effective school health service program can be attained.

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The State Health Department—Services and Responsibilities

An Official Statement of the American Public Health Association
Adopted November 11, 1953.

FOREWORD

✣ The American Public Health Association, in preparing this statement as a companion to its statement on "The Local Health Department—Services and Responsibilities," * has attempted to place on record a description of the structure, organization, and services of a state † health department as expressed by the group judgment of a responsible committee whose members have been drawn from various areas of the continent.

It must be understood at the outset that this description does not by any means fit all state health departments. These departments vary considerably in structure and powers, and in activities. In organization no two departments are precisely the same. Nevertheless, it is useful, with appropriate reservations and explanations, to present a picture of the state health department of the United States of America as it is evolving in the middle of the twentieth century.

This picture may serve to add to the understanding of those who are little acquainted with the field of public health and for various reasons seek enlightenment on this subject. It may be compared with governmental structures in the field of public health in other countries, a point of considerable consequence in this day when we are being favored with interested visitors from many countries throughout the world. Furthermore, this description serves as a guide for government officials and interested citizens as well as for the staffs of state and local health departments who, in efforts to forge ahead in their operating programs, seek the prevailing thought on this subject as expressed by a selected group of individuals who are experienced in their professional field. However, it should not discourage experimentation and imagination for new methods, new plans, and varying patterns of structure.

While no state health department at this time encompasses all of these services and responsibilities, and while it is recognized that considerable variation will exist between different states, it is expected that gradual evolution, together with the passage of additional legislation, may bring about in many states an increasing scope of activity such as is described in this statement. Originally advisory in nature, state health departments assumed additional operational responsibilities with the passage of time. State health departments were gradually made more responsible until now many have almost plenary powers in various fields of health.

The states are sovereign units of government. Their authority in the health field is derived from the state's general powers to legislate for the protection of the public safety, health, and morals. Local governmental units, including county and municipal health departments, derive their authority and power from either primary local power

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† In this statement the term "state" includes territories and provinces.

or from the state constitution and laws. In most instances, health departments of county and municipal governments act as independent units, except for such advice and consultation as they may receive from the state through technical consultations, grant-in-aid programs, and cooperative agreements. In a few states, however, a more definitive relationship exists between the state and the local health departments in which the local health department may be, in fact, a branch of the state government and receive its direction and financial supervision directly from the state.

The theory and practice of public health have expanded to include not only the prevention of the onset of illness, but also, through the use of mass technics the prevention of the progress of disease, of associated complications and of disability and death. The sharp decrease in mortality and morbidity rates from infectious diseases has caused a marked change in the age distribution of the population and in the spectrum of our health problems, including greater emphasis on the attainment of optimal health. Consequently, the organization and functions of a state health department have undergone considerable change as a result of the advancement in science and in health practices.

BASIC SERVICES AND RESPONSIBILITIES

In developing the state health program, the state health officer should seek the advice of the medical, dental, and other professional groups concerned, as well as the public. In general, the responsibility for a state public health program rests upon many individual groups and agencies. Some of these are:

1. The state health department
2. Other official departments of the state government, such as departments of mental health, welfare, institutions, education, and agriculture
3. Medical, dental, and allied professions
4. Hospitals
5. Voluntary health agencies
6. The public and its elected representatives

The health department must coordinate the work of all agencies dealing with public health in the state and should obtain the cooperation of physicians, dentists, and other professional groups in making available to the people the latest advancements in the field of preventive medicine and public health.

There are three general categories of activities:

1. Personal health services, such as diagnosis, care and treatment of tuberculosis; immunization procedures; rehabilitation of the disabled; maternal and child health services; or discovering early cases of cancer.
2. Community health services, such as isolation of communicable disease; health education; fluoridation of water supplies; sanitary control of water, milk and food, and disposal of sewage; and provision of laboratory or hospital facilities.
3. Administrative services, or those activities necessary for the operation of personal or community health services, such as budgeting, purchasing and the operation of facilities, including basic program planning, coordination and evaluation, which are essential to the operation of any such organized activity.

Certain technical services such as laboratories, statistical services, or health education may serve all these categories. Much of the effectiveness and efficiency of the services will depend upon the skill with which the over-all program planning is done and the plans are executed.

The extent of these services is based upon the responsibilities which are placed on the state health department. There are circumstances such as state constitution, custom, financial policies, location of the capital city, number and kinds of departments other than health which influence the manner of assigning public health responsibilities within a state. In general, the responsibilities for assurance of availability of services

assigned state health departments may be grouped as follows:

1. Administration

The administration of the departmental programs, including: the departmental subdivisions and policies as provided by statute and by regulations of the department within the limitations of budgetary provisions; institutions and hospitals; district or regional offices; clinics; specific or general medical care programs; hospital survey and construction programs; laboratories, both diagnostic and those producing biologicals; in a few states the direct administration and supervision of local health departments, where such local health departments are a branch of the state organization; and more recently in nearly all of the states, the responsibility for the administration of the medical and health services and special weapons division of the state civil defense program; provision for only such direct services as are not reasonably included in the programs of local health departments or which, by law, are delegated to the state department of health.

2. Promulgation of Health Rules and Regulations

Promulgation of regulations or a sanitary (health) code having the force of law; and offering advice to the state legislature and to local health departments and other health agencies relative to proposed health legislation.

3. Enforcement of State Health Laws and Regulations

Issuance of such licenses and permits as may be required by law. Conduct of hearings relative to the taking of land for the public health, or relative to complaints or appeals over the decision of local boards of health, or in regard to the passage of rules and regulations. Supervision, review, approval, and inspection, such as the approval by the state health department of the construction of public water treatment plants and public sewage disposal plants, the inspection of milk pasteurization plants, food handling, manufacturing, and processing plants; review and approval of the health aspects of plans for the construction of schools and hospitals.

4. State Program Planning and Policy Determination

The study and appraisal of state health problems to formulate broad plans and policies, with due consideration for local flexibility; the collection of data and the making of investigations relative to the conditions affecting the public health.

5. Evaluation of Existing Programs

Continual evaluation of existing state and local programs to assure the greatest possible degree of health protection and promotion for the people of the state.

6. Assistance to Local Health Units

The promotion of the development and maintenance of full-time local health units of sufficient population and of such area as can be sustained with reasonable economy and efficient administration. The establishment of standards of scope and performance of local health department activities. Provision of technical consultation and assistance. Financial assistance to local health departments which meet minimum standards of personnel and performance as established by the state in accordance with a plan and budget submitted to the state for approval by the local health department. The recruitment and training of personnel for state and local health departments.

7. Health Education

Consultation in community organization, preparation of educational materials, and dissemination of information as to the conditions affecting health, including basic information for the promotion of good health on the part of individuals and communities.

ORGANIZATION

Each state, territory, and province of the United States and Canada has a legally constituted unit of health administration in its organization. The protection and promotion of the public health in any state is of such importance that each state should have an independent department of health responsible directly to the governor.

Funds for the basic budget must be adequate in amount and provided from the state's own general funds. It is unsound to depend upon federal or special funds for the operation of the basic services and responsibilities.

The operation of a state health department depends to a large extent on the knowledge and skills of public administration, in addition to technical public health knowledge. The development of a professional point of view in public administration is a major advance of recent years. A body of knowledge and experience has been developed and recorded in the field of public administration, with which public administrators must acquaint themselves and which they must use. The organization of the state health department must embody these cardinal requirements of good public administration.

The state health department is composed of:

1. The state health officer with his staff, who together comprise the administrative or executive section, and
2. The board of health which comprises the advisory or policy forming body

The department can fulfill its responsibilities more effectively:

1. If it is adequately housed as a unit in a central location in close enough proximity to other state agencies to permit liaison
2. If adequate meeting facilities, including auditoriums, are available
3. If there are sufficient parking facilities and room for expansion

Housing of several state departments in a single building is most advantageous. The location of the state health department near other health facilities is of mutual benefit. A close association between a state health department and a school of public health, a school of medicine, or a teaching hospital can be carried out only when the health department can operate its program without undue outside pressures.

Considerable variation of opinion exists as to the desirability of a single state agency with sole responsibility for the administration of all aspects of a state health program. Although some special activity in the health field may be the function of several departments, the health department, because of its broad authority and the wide range of basic disciplines of its staff, appears to be the most appropriate agency to have supervision over all health activities of state government. The question arises as to how this supervision might be exercised. Unquestionably, coordination of the several related programs is facilitated when a maximum number of these health functions are brought under one budget, namely, that of the state health department. Moreover, federal-state relationships are simpler when such an arrangement is feasible.

In many states, some of the health functions, such as mental health, food and drug inspection, crippled children services, hospital survey and construction, and institutional management are under separate departments. Whenever such separation occurs, a coordinated program cannot be developed unless

there is effective liaison between the several departments. Interdepartmental coordination can be achieved through:

1. Staff conferences called by the chief executive of the state
2. Interdepartmental committees authorized by law or executive order, or formed voluntarily by the several departments in which the chairmanship is either determined by law or rotated among the several departments
3. Loan of personnel by the health department to other state agencies for the administration of their health programs
4. Advice made available by the state health department to other state agencies on request
5. Performance of certain services, such as laboratory analysis, or statistical tabulation for other state agencies, and
6. Development of written agreements between departments which outline the relative responsibilities of each department and the specific methods for coordination of their respective services

The Health Officer

The health officer is preferably appointed by the board of health or by the governor upon the recommendation of the board. He should be the executive officer of the department of health and the secretary of the board and serve for a term which is long enough to assure reasonable continuity and not coterminous with that of the governor. He should be eligible for reappointment. The qualifications of the position of health officer should be adopted by the board or by the state legislature. These qualifications should include:

1. Graduation from an approved school of medicine and licensure or eligibility for licensure to practice medicine in the state
2. Whenever possible in all states, his experience and training should be such that he would be certified or eligible for certification in public health by the American Board of Preventive Medicine
3. Whenever a physician who is certified in public health by the American Board of Preventive Medicine is not available, then one should be selected who has at least one year of postgraduate training in an accredited school of public health and at least three years of successful experience in a full-time administrative position in an acceptable health agency. (The question of successful experience and an acceptable health agency should be decided by the board of health.) In lieu of curricular training in an accredited school of public health, he should have a total of at least five years full-time successful experience in an acceptable health agency. Residence within the state prior to appointment should not be a requirement.

The salary of the state health officer should be determined preferably by the board of health and should be at a rate which would be sufficient to attract a highly competent and qualified physician who is a certified specialist in public health or qualified to become one, such income being comparable to that of other certified medical specialists in the state.

One of the important functions of the health officer is to be a consultant to the governor, the legislature and to others in state government.

Board of Health

Every state health department should have a board of health serving as an advisory and quasi-legislative body. In some states, the board is vested with administrative authority, such as policy forming, and may approve or appoint the health officer and other key personnel. In this instance, the health officer acts as its executive officer. The duties of the board may include:

1. Promulgating regulations
2. Holding hearings
3. Issuing licenses and permits
4. Reviewing plans, programs, budgets, and reports of the department

The membership of this board should be adequately representative of the medical and other professional groups and the public.

No single profession or business group should constitute a majority. The board, consisting of from seven to nine

members, should be appointed by the governor for staggered terms of office of from five to seven years. The appointments should take into consideration the expressed interest and experience in the general field of health. Meetings of the board should be held regularly, at least quarterly, and preferably monthly. The board of health should elect its own officers and pass by-laws for the conduct of its meetings. Members of the board should be eligible for reappointment and should receive an honorarium and the necessary expenses for each day when attending meetings.

Personnel Policies

There should be a provision for the appointment and discharge for cause, of one or more deputies, by the health officer.

The health officer should be authorized to employ and discharge, in accordance with generally accepted good personnel practices, assistant health officers and other personnel. Such personnel practices should include:

1. Recruitment plan — There should be an aggressive recruitment plan whereby qualified individuals, regardless of race, color, creed, political affiliation, residence, or any other factor not important in job performance, are procured to fill vacancies.

2. Merit system—Objective competitive examinations, written and oral, or both, given by a merit system of personnel administration and a probationary period, should be used to select the best qualified of all available applicants for public health positions. Advancement should be on the basis of capability and meritorious service. There should be security of tenure, although provision should be made for termination of employment for nonproductiveness. A classification plan should be developed and should provide for detailed description of:

a. Positions, after job analysis
b. The qualifications in terms of training, experience, and personal attributes necessary for job performance

The merit system must be so designed as to prevent undue outside influence. Employers should be permitted to select employees from a list of not less than three qualified persons.

3. Compensation plan — There should be:

a. A compensation plan, continually reviewed for adequacy, which provides substantial ranges between minimum and maximum salaries
b. Equal pay where the responsibilities, duties, and the education and experience requirements are comparable

Such a compensation plan for professional employees should be determined by the health department with the approval of the state personnel agency or by the personnel agency itself, and not by the state legislature. The salaries should attract and hold professional workers by comparing favorably with those paid by other agencies.

4. Inservice training — Professional competence should be maintained by suitable inservice training programs for all types of personnel.

5. Retirement system—An actuarially sound and comprehensive retirement system maturing at age 65–70 should be provided. It should make provision for ordinary disability and disability occurring in line of duty. In general, it should provide for:

a. Permissive retirement after 20–25 years of service or at age 55
b. Compulsory retirement depending on ability to perform duties satisfactorily

Major Departmental Units

In order to carry out its many responsibilities and services, each state department of health has developed its own particular organization. Although the pattern of public health organization on

the state level is more varied than that found locally, in general there are certain trends which are characteristic.

There are general trends of health department administration such as:

1. Coordination of health department activities with voluntary agencies
2. Increasing controls placed on state health departments by governmental budget, personnel, and comptroller officials
3. The grouping of divisions having similar services into bureaus

The major units may vary in the several states, but there is a definite tendency to group similar services in major units, designated here as bureaus:

1. Bureau of local health services
2. Bureau of general services
3. Bureau of environmental sanitation

The remaining services may be in a single bureau of preventive health services or divided into additional bureaus, such as:

4. Bureau of preventive health services
5. Bureau of special health services
6. Bureau of institutions

The bureau chief is usually a deputy or assistant health officer.

The primary qualification for the position of a bureau chief is administrative ability more than the specific type of training. Some bureau chiefs may be physicians, engineers, dentists, etc., for example, even though several related services may be grouped in a bureau for administrative purposes.

The bureau is comprised of several subunits, each of which is administered by a director who is a specialist in his particular field. In the large departments, the subunits may be further subdivided. The determination of the number of units and subunits is dependent largely upon the number of personnel, the budgetary provisions, and the scope of service rendered.

The terms "bureau," "division," and "section" are used in this statement with the full realization that such a terminology does not conform to the nomenclature found in all states. The terminology does follow that used in the federal and some state governments and familiarity with a known usage is the major reason for its utilization here. The terms employed in this discussion are as follows:

1. "Bureau"—a major unit of the state health department
2. "Division"—a subunit within the "bureau"
3. "Section"—a subunit of the "division"

The terminology of units and subunits, as well as their relative importance and placement in the state health department, varies in actual practice among the several states.

The specific services undertaken by a state department of health should be primarily determined by:

1. Established need for the services (including needs arising from special problems of the area)
2. Public recognition of the need and demand for the services

The creation of services thus recognized to be necessary and timely may require new or revised legislation, special or specific budgetary provision, and development of special interest and new kinds of competence among health department personnel.

Planning and Staff Organization

In developing the plans and programs of the department, the health officer utilizes the skills of his personnel. Effective planning requires the acme of administrative skill in order to make the fullest possible use of the collective and individual knowledge and skill of bureau, division, and section directors, and other specialized staff.

Such good planning requires:

1. Proper staff organization with predetermined channels of communication

2. An opportunity for staff of all disciplines to have access to the health officer
3. A mechanism of periodic staff conferences at all organizational levels

No one method will assure good planning. The prime requisite is high quality and democratic leadership on the part of the health officer. Each department will need to evolve its own mechanisms for communication and joint planning such as:

A policy committee, usually consisting of the health officer, deputy, and assistants in charge of major units and some of the subunit directors, should evaluate programs and plan policies and procedures. Such policy meetings should be presided over by the health officer and held at regular intervals, preferably monthly. In turn, the deputy and the assistant health officers who are in charge of major departmental units are held responsible for holding staff meetings of their respective subunit heads to obtain their participation in the formulation of plans and policies.

Since public health practice involves a variety of special skills working for a common purpose, the entire staff, including each of the disciplines, such as nursing, dentistry, engineering, nutrition or social work, has common responsibilities.

1. For the department:

a. Participating in and directly contributing to the planning of the total program of the department

b. Participating in and directly contributing to the over-all appraisal and evaluation activities of the total program of the department

2. Each discipline for its own members and activities:

a. Planning the long-range program for its particular service, in relation to the total health program of the departments and acting as adviser to the state health officer and other members of the staff on all matters concerning their particular discipline

b. Serving as chief adviser of the state health officer in the procurement and distribution of personnel trained in their discipline and the amount, flow and quality of production of the services of these persons throughout the department. The chief of each discipline should provide, under the direction of the health officer, technical supervision for other staff members of the same discipline

c. Developing cooperative relationships with professional organizations and educational institutions concerned with their discipline and participation in state-wide programs for the improvement of the relevant education and service.

d. Evaluation of the relevant service as a whole and in each of the special aspects; and in the performance of all personnel of their discipline by means of accepted methods and criteria.

State-Local Health Department Relationships

Since the local health department is dependent for leadership, guidance, and sometimes direction, upon the state health department, it is essential that the channels of communication both to and from the local health department and the state be clearly and well defined. Too often, local health departments may be the target of communications from many specific program directors emphasizing the importance of their particular programs. Thereby, the local health officer may only judge the individual importance of the various programs proposed by the state by the relative eloquence and enthusiasm with which each state agent is able to advocate his particular program. This type of vertical organization often causes an unbalanced program in the local health department and leads to lack of coordination of the programs on both local and state levels. The local health officers should meet at least annually with the state health officer and should participate in an advisory capacity in the formulation of over-all, state-wide policies and programs for health services.

The state should not attempt to build up large service units of public health

nurses or sanitarians. On the other hand, the state should encourage local health departments to employ these persons in such numbers as may be necessary to meet local needs.

ILLUSTRATIVE BUREAUS

Bureau of Local Health Services

The bureau of local health services is primarily responsible for the liaison between the state health department and local health departments. It is responsible for coordinating the programs of the various bureaus, divisions, and sections of the state health department concerned with local health and for channeling these services through the bureau of local health service to the local health departments.

The directors of specific programs in the state health department act as technical advisers and are available upon the request of local health departments, such requests being channeled through the regional or district health officer to the deputy responsible for local health services. However, the deputy health officer responsible for local health services should not lose sight of the importance of promoting the various categorical programs among the several local health departments.

The bureau is responsible for the development of a state financial assistance program for local health departments, based upon a formula utilizing the factors of population, financial need, and public health problems. Thus, state funds, matched by local appropriations, should be disbursed to local health departments in accordance with an established plan. This bureau also determines the standards of operation and personnel and reviews the budgets and plans of local health departments. It is responsible for the promotion, establishment, maintenance, and extension of local health departments.

In addition, service divisions such as public health nursing and social work may be under the bureau of local health services. In some states, they may be part of the bureau of general administration or the bureau of preventive health services.

District and Regional Offices

Some of the largest states are divided into districts or regions, each staffed by a district or regional health officer and other personnel, such as public health engineers, nurses, sanitarians, health educators, social workers, physical therapists, nutritionists, clerks, and others. These state districts are normally an administrative part of the bureau of local health services which provides them with administrative supervision and coordinates and, to some extent, directs the relationships of the staff with local health departments. The district or regional staffs are consultants to local health departments. If these consultants require assistance from specialists, these specialists are made available from the divisions in the central department.

In those states where local health departments do not adequately provide minimum services, some services which would normally be provided by local health departments are supplied by the state district health offices within the personnel limitations. Because of the large population or geographical area that must usually be covered by the districts, their direct services are necessarily skeletal in nature and only the services most essential for the public health are rendered.

Division of Nursing

The unit on public health nursing should be included in the policy planning programs of the department. Public health nursing is a family service of an educational and social nature, as well as a technical service needed in a variety of medical and clinical specialties. It entails distinct knowledges, method of

work and technical preparation. Public health nurses are one of the largest groups of personnel employed by local health departments, but are not nearly as large, relatively, in a state health department. If local health departments have adequate staffs of public health nurses, there should be little, if any, need for nurses in the state health department to render direct services. Therefore, only sufficient numbers of nurses need be employed by the state as are necessary to give adequate advice, consultation, and supervision to district and local personnel as well as to other units in a state health department and other state agencies. Most public health nurses render a generalized program, but there are, in most states, specialists who act as consultants. Many states assign these consultant nurses to certain divisions with specific programs, such as venereal disease and tuberculosis.

Nurses employed in institutions are usually not integrated with and not responsible to the public health nursing division. However, efforts should be made to develop methods for coordinating the work of these two groups and wherever the state health department has responsibility for institutions, the nursing services should be integrated.

Division of Social Work

The trend to employ more medical social workers in public health has been apparent over the last decade. As with the public health nurses, the public health social workers should usually carry on generalized programs. Therefore, only such numbers of social workers should be employed by the state as may be necessary to give assistance to local personnel. In many states, particularly those where crippled children services and other specific medical care programs are operated by the state, the state social workers have been providing more direct services. In states where the health department is responsible for the operation of institutions, certain social workers may be assigned specifically to such institutions. In addition, full-time social workers may be placed in cancer, venereal disease, or other programs.

Bureau of General Services

Under the direction of the health officer, this bureau is charged with the over-all development of policies and plans, the review of programs, and liaison with federal, other state and local agencies, and voluntary groups. It is responsible for the preparation of plans, policies, and reports, and for numerous administrative services for the entire department.

Division of Administration

Usually under the direction of a deputy or assistant health officer, the division of administration is responsible for the preliminary preparation of plans, reports, budgets, and the supervision of administrative matters.

A. Legal section—Some states have separate sections dealing with:

1. Issuing licenses and permits
2. Preparing regulations or a sanitary code
3. Interpreting proposed legislation for the state legislature and local health departments

Under the direction of a lawyer, this section is responsible for keeping:

1. The manual of laws and regulations up to date
2. A continuous file on the regulations of local health departments

Often this function may be performed in the office of the health officer.

B. Fiscal section—This section conducts the fiscal operations of the department, such as:

1. Preparing formal budgets
2. Keeping accounts and fiscal records, including state appropriations, grants-in-aid received from the Federal Security Agency,

through the Public Health Service and the Children's Bureau, and other moneys which may be received from foundations, individuals, or other sources.

Assistance is also given to local health departments, sanatoria, and other institutions in the formation of budgets and reports in accordance with standards set up for state subsidy programs.

C. Personnel section—This section is responsible for:

1. Developing procurement procedures
2. Processing personnel requisitions and other documents
3. Maintaining liaison with state personnel and civil service agencies whenever these are outside the department of health
4. Supervising the department's personnel policy, including adequate plans for vacation, sick leave, and retirement
5. Keeping merit records on all employees

Division of Vital Statistics

In all but one state, the responsibility for keeping vital statistics is in the state health department. The division should be responsible for the registration of births, deaths, morbidity, marriage and divorce records, and for the analysis and interpretation of data obtained from such records. The division should also be prepared to develop statistical studies, either alone or with other divisions of the health department, designed to define in quantitative terms the nature of public health problems, and to develop means of evaluating the effectiveness of health department activities. It should also offer services to local health departments and occasionally to voluntary health agencies.

Division of Health Education

Most states are charged with the responsibility for health education activities and for collecting, organizing, and disseminating information pertaining to conditions which affect the public health. All personnel within the state health department participate in a health education program, and the division of health education itself is charged with the coordination of the various educational programs in the individual departmental units. Some health educators may be assigned to the district or regional offices, and preferably such programs should be channeled through local health departments. The health education program may be subdivided as follows:

1. Organizing communities to meet their health needs with available resources
2. Planning educational programs for the various service divisions of the state health department
3. Cooperating with other organizations to develop an integrated health education program which will complement and amplify the educational programs of the state health department
4. Assisting in the training of personnel
5. Preparing educational materials
6. Arousing public interest and informing the public about health problems and activities in the health department, by means of the press, radio, motion pictures, and other methods

Division of Training

This is a relatively new unit which is being developed in an increasing number of state health departments to coordinate the training programs. As with the division of health education, the division of training acts to integrate and to advise in the actual training programs which are carried out by other units within the department. These training programs should be concerned with:

1. Orienting new personnel
2. Inservice training for all types of public health personnel
3. Developing field training for students in various phases of academic public health training
4. Scholarships or stipends to promising employees
5. Recruitment

Many states offer fellowships consisting of tuition and stipends for the training of personnel in approved schools of

public health, nursing, and similar postgraduate institutions.

A well organized training program can be an effective force in the recruitment of professional personnel. Some states offer approved residency training programs acceptable to the American Board of Preventive Medicine.

Division of Laboratories

Most states maintain a diagnostic laboratory for communicable diseases and a laboratory for the analysis of water and sewage samples. Some states have, in addition, laboratories for shellfish, milk, food and drug control, and industrial health. A few states operate laboratories for the production of biologicals and the collection and fractionation of blood, tissue diagnosis, and other services, and research. Ideally, all these laboratories should be housed jointly and should be under the direction of a director of laboratories.

The volume of services performed will be dependent upon the availability of other laboratories in the area and the extent to which the medical, dental, and allied professions turn to the state for these services.

Depending on the scope and nature of the laboratory services which are offered, the division of laboratories may be placed, as here, within the bureau of administration or, under other circumstances, it may be included within the bureau of preventive health services or the bureau of institutions.

In geographically large states there may be branch laboratories of the state, or the state may develop cooperative agreements with hospitals or local health departments for the performance of certain services.

Many states conduct approval programs of laboratories in local health departments and hospitals. In the past, many of these approvals have been only for the performance of diagnostic serological tests for syphilis. However, the trend is to develop approval programs for all diagnostic procedures for communicable diseases as well as for the analysis of food, milk, water and sewage samples, and research.

Division of Registration

In some of the states, the registration of physicians, dentists, nurses, and other practitioners of the healing arts, as well as beauticians, barbers, and other similar groups, may be in whole or in part the responsibility of the state health department.

Community Disaster Services

Usually the state health officer and his staff have been assigned the responsibility for developing plans on a statewide basis to prepare the medical and health plans for handling community and regional disaster. In most states the state health officer is also the head of the medical and health services and special weapons defense division of the state civil defense agency. As such he is charged with the responsibility for developing plans to handle:

1. Casualties and medical care for displaced populations
2. The defense against special weapons, atomic bombs, biological, radiological, and chemical warfare

This unit also has the responsibility to prepare the state to meet the health needs not only of wartime but other disasters.

Bureau of Environmental Sanitation

Under the direction of a sanitary engineer, who may be a deputy, are grouped all the services in environmental sanitation.

Division of Sanitary Engineering

Concerned with the approval of treatment works of public water supplies and

public sewage disposal systems, this division is also responsible for controlling pollution, supervising shellfish areas in coastal states, abating noisome trades, and giving consultative advice to community and other state agencies, not only in the field noted above, but also in refuse and garbage collection and disposal, dumps, operation of overnight and recreational camps, rodent and insect control, hygiene of housing, and accident prevention.

In some states, supervision of private water supplies and private sewage disposal facilities may be the concern of the state health department, but usually these are left to the jurisdiction of local health departments. Most state divisions of sanitary engineering give consultation to industries and municipalities relative to the proper disposal of industrial and domestic wastes.

Division of Food and Drugs (Including Milk)

The supervision of food and milk sanitation should be the responsibility of the state health department, but in some states it is assigned to other departments. Such supervision is usually the dual responsibility of local and state health departments. The division is concerned with health, safety, quantity, quality, and consumer value of foods, milk, drugs, and cosmetics. Possessing police authority, inspectors are authorized to enter premises, collect samples, initiate complaints in court, and, when necessary, to seize and destroy food unfit for human consumption. The education of food handlers and other educational programs is increasing.

Division of Occupational Health

This division is in the health department in all but a few states, in which it is in the department of labor. This division may be placed either in the bureau of environmental sanitation or the bureau of preventive health services.

Concerned with reducing or eliminating occupational injury and disease, and with improving the general health of all workers through preventive measures, occupational health utilizes many professional skills including those of physicians, engineers, nurses, chemists, health educators, and biostatisticians, etc.

The personnel offers laboratory and field studies, inspections and consultations. The services are available to management, labor, and to professional personnel in other departments of government and in the fields of education and health.

Their work includes cooperation with those in allied areas including labor department, safety organizations, voluntary agencies and private medical practice. Occupational health provides a channel for other health department personnel to reach the worker and his family. Opportunity is given to local health departments to learn how inclusive occupational health programs can be developed locally, particularly for small industries. An occupational health unit also conducts research programs and offers specialized laboratory services relative to occupational health hazards.

Bureau of Preventive Services

Under the direction of a well qualified public health administrator this bureau may be responsible for those basic preventive public health programs, such as communicable disease control and maternal and child health.

Division of Communicable Disease Control (Including Acute Communicable Diseases, Venereal Diseases, Tuberculosis, and Animal Diseases Transmissible to Man)

Large states have separate divisions for communicable diseases, venereal diseases, and tuberculosis. Smaller states may combine these and may have

also, in combination, the services for chronic diseases. With the diminishing morbidity of communicable diseases and venereal diseases, including tuberculosis, there is a trend to combine these services within a single division.

A. Acute communicable diseases—The communicable disease responsibilities of the state are:

1. Collecting reported data from local health departments
2. Publishing reports on the incidence and prevalence of disease
3. Conducting or assisting in epidemiological investigations
4. Promoting immunization programs and other methods for the prevention of communicable diseases
5. Developing regulations for isolation and quarantine
6. Disseminating knowledge relative to the prevention and treatment of contagion during outbreaks
7. Assisting in applied research relative to the spread, prevention, and other epidemiological behavior of communicable diseases

All states provide laboratory facilities for the diagnosis of these diseases.

B. Tuberculosis—This case-finding, diagnostic, and treatment program for tuberculosis is a joint responsibility of the local and state health departments. In some states the tuberculosis sanatoria may be operated by separate agencies.

Most states conduct special programs for tuberculosis case-finding activities, such as conducting mass x-ray surveys, investigating contacts of cases, and studying population groups in which experience has revealed tuberculosis is most likely to be found.

In some states the tuberculosis responsibilities and services are combined within the same division which administers the sanatoria. The tuberculosis care and sanatoria management may be the joint responsibility of the state and county rather than the state health department.

C. Venereal diseases—The case-finding, diagnostic, and treatment program for venereal diseases is a joint responsibility of the local and state health departments.

Usually, diagnostic facilities and drugs are available. Some states operate diagnostic clinics directly, while others conduct such clinics in cooperation with local health departments or general hospitals.

D. Animal diseases transmissible to man—There are more than 80 animal diseases transmissible to man. For many of these, such as brucellosis, leptospirosis, rabies, and Q fever eradication or control of the disease in animals is the only means of eliminating human infection.

The veterinarian is a technical adviser and consultant to the public health administrator on preventive medicine, food hygiene, legislation, and health education as they relate to animal diseases transmissible to man.

The programs involved require the full use of the methods of epidemiology, health education, and applied research, just as do other types of disease control. Particularly important in this field is the liaison with other departments, such as agriculture, and with the veterinary profession.

Division of Maternal and Child Health and Crippled Children

All state health departments are responsible for the administration of maternal and child health programs. In most states health departments also operate crippled children services. In the remaining states the trend is for the crippled children program to be transferred to the health department. Since the programs for the care of crippled children are a specialized type of service, some states may include a specific division for crippled children within the bureau of special health services which concerns itself primarily with specialized care and treatment programs.

In general, maternal and child health programs pay special attention to services for the mother during the antepartum, partum, postpartum periods, and for the child during infancy, preschool age, and school age.

Coordinating its work with the department of education, this division is also responsible for the promotion and/or supervision of the school health programs conducted by either local health departments or local school systems, including an educational program and a medical program designed to reveal the disabilities, such as defective hearing and vision in children, so that a follow-up for the necessary corrections of the revealed disabilities may be made.

Consultants are available to hospitals, day care centers, private and parochial schools, physicians, and other interested groups on special problems of children. Many states have developed special facilities for the transportation and hospitalization of premature infants. The programs for handicapped children vary in different states. They are tending tc emphasize the common features of handicapping conditions, and consequently to become more inclusive of diagnostic groups. In a few states special programs for congenital heart diseases, cerebral palsy, and epilepsy have been initiated.

Division of Dental Health

The task of the unit in dental public health is (1) providing consultative and educational services for motivating people to utilize preventive or control technics such as the topical application of sodium fluoride, fluoridation of water supplies, reduction in the consumption of sugars and the proper brushing of the oral structures, and to seek prompt and adequate oral treatment; (2) assisting through postgraduate courses in the continued education of dentists for the performance of preventive or control technics and those services, often neglected, such as the early diagnosis of malignant oral lesions, the habilitation of people with oral clefts, the treatment of periodontal conditions and the practice of dentistry for children; (3) making available and promoting the utilization by dentists of more laboratory diagnostic services, such as lactobacillus counts, Snyder tests, determinations of the content of fluorides in water supplies, bacterial examinations and examination of tissues from biopsies in order to assist in the early detection of oral disease or the evaluation of progress in treatment; (4) engaging in administrative research designed to promote the objectives of dental public health and to develop and test improved oral indexes for determining base lines to be used in evaluating improvement from the operation of programs; and (5) developing scientific and functional dental educational media. The dentist serves as another highly trained specialist of the public health team. The extent and scope of the dental health problem and the activities of the dental health unit are such that a number of states have organized this program into a separate bureau.

Division of Mental Health

Mental health as a public health function should be incorporated within the state health department activities. In some of the large states, mental health programs are administered by a separate department which concerns itself also with the institutional care of patients. In most states the health department is responsible for the preventive aspects of a mental health program and the promotion of mental health services in local health departments. Child and adult psychiatric clinics and staff and public educational programs are some of the community health services offered.

While many of these programs are

offered directly by the state organization, in some states they are conducted in a cooperative basis with the larger local health departments in metropolitan areas.

Bureau of Special Health Services

The bureau of special health services is responsible for administering those programs involving specific types of health services which are not ordinarily offered by local health units, because of their lack of required technical personnel.

Thus, these specialized services have been included within the bureau of special health services, while those services primarily designed to assist local health units have been placed within the bureau of preventive health services and the bureau of local health services.

Division of Nutrition

Adequate nutrition programs may include: periodic surveys of foods consumed and of the incidence of malnutrition; educating the general population and special groups; promoting clinical services; promoting legislation and other means of securing enrichment of critical foods. Particular emphasis will usually be placed on consultation to the public health nurses, school health programs, teacher-training institutions and to professional training institutions. Special laboratory services are often required.

It is important for the nutrition service to be placed administratively where it can be most available to all program directors within the department.

Division of Chronic Disease

Cancer and heart disease programs are a relatively new and growing interest of health departments. In some states diagnostic cancer clinics or cancer detection clinics have been operated for many years. Statistical studies and research, as well as diagnostic cancer services, are offered by most of the larger states. Many of the clinics for cancer and heart disease are cooperative clinics in which the state assists local general hospitals in expanding and improving their existing diagnostic and case-finding programs. In a few states programs designed to meet the problem of the aging population have been developed. Programs for multiple screening and for arthritis, diabetes, and other chronic illnesses, are becoming more numerous. However, in the main, these are as yet in the process of development, evaluation, and demonstration.

If chronic disease hospitals are operated by the state health department, they would not be included within the division of chronic diseases, but would be placed under the bureau of institutions.

Division of Alcoholism (Including Drug Addiction)

A few states have pioneered in the field of chronic alcoholism by initiating educational and research programs in addition to clinics for selected cases that may be admitted for rehabilitation.

It is expected that the increased interest in drug addiction will stimulate new programs for the management of drug addicts, including further research and strengthened narcotic control. In a few states the health department may be charged with the development of a hospitalization program for narcotic addicts. In others the department of mental health may have this responsibility. The program for drug addiction may be placed in a separate unit.

Division of Medical Care

A few states are presently operating a general medical care program for indigents or medical indigents. Some

state health departments act as consultants to the department of welfare for the provision of medical care.* Some are responsible for general supervision of hospital prepayment programs, including the approval of contracts made between the prepayment insurance groups and participating member hospitals. Many state health departments operate special medical care programs, such as diagnostic treatment and follow-up clinics for venereal diseases and tuberculosis. More recently, a few states have developed programs for cancer, heart disease, chronic disease, and multiple screening clinics. Most of these programs are operated from the special categorical divisions and are not integrated by a separate division on medical care.

Bureau of Institutions

If the state health department operates state hospitals and sanatoria, a large proportion of the departmental appropriations may be extended for the operation of these facilities. As the specialty of hospital administration has developed, it has become desirable to place the responsibility for the operation of health facilities within a specific bureau of the state health department. The primary concern of this departmental unit in the operation of these state facilities would be the business management of the institutions, although the bureau would cooperate with other subdivisions of the department which operate programs closely concerned with the care of patients. The state health department, through this bureau, may also supervise the programs for:

1. Licensing public and private hospitals, clinics, convalescent and nursing homes, and boarding homes for the aged within the state
2. Aiding in the construction and improvement of local health centers and by financial assistance and expert consultative advice

Division of State Hospitals and Sanatoria

In some states the health department is assigned the responsibility for the administration of tuberculosis and other types of hospitals and sanatoria. In a few states the health department also operates cancer hospitals, chronic disease hospitals, and hospitals for crippled children. Mental hospitals may also be administered by the state health department. There is a trend to place within a single department all types of institutions which are concerned with health services. All institutions in a few states are operated by a separate commission on institutions, or by other departments of the state government. But the responsibility for the administration of those state hospitals and sanatoria which are in the state health department would be with this division.

Division of Hospital Licensing

Most state health departments are now licensing hospitals. Many are licensing clinics, convalescent and nursing homes, and boarding homes for the aged. Periodic inspections determine compliance with regulations made by the state. Consultations are offered to hospitals in all fields of hospital administration, such as construction and conduct of maternty units and hospital care of premature infants. Most state health departments are also responsible for the administration of the temporary Hospital Survey and Construction Program as provided by the Hill-Burton Act. In smaller states the functions of hospital licensing and the administration of the Hill-Burton program may be combined within the same unit which is responsible for the operation of the departmental institutions.

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* See statement of the Joint Committee on Medical Care: "Tax Supported Medical Care for the Needy," A.J.P.H. 42, 10:1310-1327 (Oct.), 1952.

CONCLUSION

The pattern of development of the health department in each state must conform to the needs and resources of that state. Therefore, a uniform departmental organization among the various states is not to be anticipated, and indeed, is not desirable. The plan of organization of a state health department as presented in this statement is only a suggested guide, although it does indicate those services and responsibilities which may be incorporated into efficiently organized and adequately staffed state health departments.

The development of programs within the field of public health is not a static process: it is indeed dynamic. Changes of necessity will, therefore, occur in the services and responsibilities of a state health department. But this statement does indicate a structure which is sufficiently flexible in its organization so that these services and responsibilities may be undertaken by those state health departments having the inclination, opportunity, and interest.

The Subcommittee on State and Local Health Administration responsible for drafting the report was under the chairmanship of Dr. Getting and included the following persons:

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This report, prior to its adoption by the Governing Council as an official statement of the American Public Health Association, was prepared and approved by the Committee on Administrative Practice whose members as of November, 1953, were as follows:

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Who Shall Inspect and Who Shall License?

✣ One of the most stimulating discussions presented at the APHA annual meeting in New York before the Engineering Section dealt with the problem of The Trend Toward Centralized Inspection Services for municipal areas. With the pressing demand upon our space, it does not seem possible for us to publish all the five contributions in this field. We have selected for presentation in this issue the address of Charles L. Senn of Los Angeles, since it deals more fully than the others with the basic principles involved. The detailed experience obtained in Philadelphia and Washington can, no doubt, be made available by correspondence to other health officers meeting similar situations. The problem of multiple inspection was discussed at some length by Paul W. Purdom [1] of the Philadelphia Health Department and by William H. Cary, Jr.,[2] of the Health Department of the District of Columbia.

In the District it is possible that a hotel providing floor shows may be visited by 21 different kinds of inspectors! Under a reorganization plan proposed in 1953, it was provided that a Department of Licenses and Inspections be established to take over the duties of a wide variety of departments and divisions, including the Bureaus of Public Health Engineering and Food Inspection. The need for highly specialized and technical services in the health field was finally made evident to the commissioners of the District and all that actually happened was the consolidation within that department of the two bureaus specified. Clearly, this problem is not a simple one which can be solved on the city planner's drafting board.

In Philadelphia a similar issue was faced in reorganization made possible by a new city charter adopted in 1951. In this case a more moderate and practical procedure was evolved. It was provided that all licenses be issued by a single over-all department; but the actual inspections on which such licenses were based continued to be made by the various expert bureaus concerned. The Bureau of Licenses and Inspections, however, is charged with direct inspection duties of housing, and here there is not yet a clear division between its duties and those of the Health Department.

Mr. Purdom pointed out the major issues involved as follows:

1. The issuance of licenses by a single agency has many advantages. It is efficient and convenient for the public. The health department personnel are freed of the work of collecting license fees and spend all of their time on health problems.
2. The thought that concentration of inspection services will ultimately result

in a single worker performing all of the various municipal inspection functions is not completely realistic. There are both legal and practical limitations. It does not appear feasible to expect one individual to acquire sufficient technical knowledge in a variety of specialized fields to perform all inspections adequately.

3. In related areas of inspection greater efficiency can be obtained by generalizing inspections. This can proceed irrespective of the department providing the service.

4. There are certain activities, for example, food sanitation, industrial hygiene, and others, where the application of engineering principles is so closely integrated with knowledge of biological sciences that it is not desirable to detach them from the professional public health supervision.

5. The final and perhaps most significant conclusion is that when a health department, or any governmental agency fails to be cognizant or responsive to the community needs, or is dilatory in the discharge of its duties, then the department may expect to be shorn of its powers and to have its duties vested in other agencies. To avoid this, health officials must provide enlightened and progressive leadership.

The granting of permits for new construction is a relatively simple matter of routine engineering so far as structural safety and avoidance of fire hazards are concerned; so far as human habitations and establishments devoted to the serving of food are concerned, however, we are dealing with ever-changing human problems, largely biological and psychological rather than mechanical in nature. It is the belief of the writer that the health department is the only organ of the city government which can perform this function satisfactorily. It is a function largely educational in nature and one which can only be performed effectively by the broadly trained public health engineer, alert to the new problems which constantly arise and to new methods of meeting them. Furthermore, the health department already has—must have—its engineers, sanitarians, and nurses visiting the homes and the food stores and restaurants of the city. It is worthy of note that the health problems of housing have been solved, even to a minor extent, only in such cities as Memphis, Baltimore, and Milwaukee where the health department has vigorously undertaken this function. We believe, therefore, that as far as the occupancy, maintenance and use of dwellings and eating establishments are concerned, all forms of inspection pertaining to health should be carried out by the local department of health. We are dealing here not with the mechanical execution of formalized abstract regulations, but with that constructive leadership of an informed health conscience which it is the basic duty of this department to foster.

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1. Purdom, Paul W. The Philadelphia Story. Panel discussion of the APHA Engineering Section and the Conference of Municipal Public Health Engineers, "The Trend Toward Centralized Inspection Services."
2. Cary, William H. The Washington Report. Ibid.

Cigarettes and Cancer

✣ The apparent relationship between cigarette smoking and the prevalence of lung cancer has awakened wide repercussions in the public press and has even affected materially the value of the stocks of companies engaged in the business of producing cigarettes. The paper by Lester Breslow, M.D., in the present issue of the Journal presents significant and striking evidence of the correlation of cigarette smoking with the incidence of cancer of the lungs. In the storm of public dis-

cussion little attention has been paid to what seems to the editor one of the most significant aspects of these correlations—the indication that a high incidence of lung cancer is associated with the excessive use of cigarettes but not of pipes and cigars. Does this not suggest that the method of smoking rather than merely the use of tobacco is the governing factor at work? Very few smokers of pipes or cigars inhale, but many cigarette smokers do, in fact, habitually draw the smoke produced into the lungs.

The episode recalls to the writer a certain meeting, at which John D. Rockefeller, Jr., had introduced Dr. Harry Emerson Fosdick in a highly laudatory speech. Dr. Fosdick opened his talk by saying, "I am told that flattery is like smoking. It does not hurt you unless you inhale; and I do not inhale."

May this not be the answer?

Research and Application

✠ An analysis of grants for medical research during the past decade, by Kenneth M. Endicott and Ernest M. Allen,[1] shows a heartening increase in contributions for this purpose. The total funds available have risen from $18,000,000 in 1941 to $181,000,000 in 1951. Of the total sum available in 1951, 41 per cent came from the federal government, 33 per cent from industry, and 25 per cent from foundations and other sources.

In 1950 the total of medical research grants amounted to less than one-tenth of 1 per cent of the national income. This is a sound and wise investment; but its profits cannot be realized unless the results obtained in the laboratory are actually applied in the field. The radical reductions made by the last Congress in federal grants to the state health departments will seriously hamper the effective utilization of the newer knowledge of public health which year by year is being acquired.

1. Endicott, Kenneth M., and Allen, Ernest M. The Growth of Medical Research 1941–1953 and the Role of Public Health Service Grants. Science 118, 3065:337–343 (Sept. 25), 1953.

LETTER TO THE EDITOR

To the Editor:

On the anniversary of Sir Jack Drummond's tragic death, his friends, in a spirit of admiration, loyalty, and enthusiasm undertook the establishment of a Memorial in his honor. The form of the Memorial now planned has a peculiarly strong appeal with reference to Sir Jack. To quote from Lord Woolton's statement of the plan:

"He had devoted twenty years to work in the field of experimental nutrition and the nation had begun to realize the immense importance of food in relation to health and the prevention of disease.

"During the 1939 war Drummond used this knowledge admirably in the interests of the nation. He applied himself with almost a crusading zeal to meeting the particular nutritional needs of the growing child, the expectant and nursing mother, and the sick. As a result we introduced, through the Ministry of Food, important measures that have had far-reaching consequences.

"This work ought not to be forgotten, and a committee has been formed, un-

der my chairmanship, to ensure that his name and work may live. We have thought that the most suitable memorial would be to endow a Drummond Research Fellowship in this subject of nutrition. The Fellowship which would cost about £25,000, would be administered by a body of University Trustees and be tenable in any university or appropriate research institution.

"We beg that all who share our sense of indebtedness to the work of Drummond, whether they be societies of various kinds, industrial organizations or private people who feel grateful will subscribe generously to this appeal."

The committee formed initially in the United Kingdom to sponsor the Memorial consisted of Lord Woolton, Lord Horder, E. C. Dodds, Harold Hinsworth, William Slater, Norman Wright, A. C. Chibnall, G. F. Morrison, F. G. Young, Ifor Evans, L. Anderson, H. J. Channon, Harry Jephcott and Wilfred Vernon.

It is appropriate, also, to quote from Dr. H. J. Channon's tribute to his friend:

"Drummond's death leaves a gap such as is seldom left by the death of any one man. But it is also true to say that seldom has one man struck so vivid a flash of friendship, enthusiasm and enterprise in all he met."

Knowing that friends of Sir Jack on this side of the Atlantic, who had the privilege of sharing in his friendship—and often in his work—will want to share in perpetuating memories of his scientific accomplishments and radiant personality, the following committee has joined in formulating this appeal for contributions to the Memorial:

Charles H. Best	Karl E. Mason
R. Keith Cannan	L. A. Maynard
Hans T. Clarke	L. B. Pett
A. S. Cook	Wm. H. Sebrell, Jr.
Vincent du Vigneaud	Elmer L. Sevringhaus
E. C. Kendall	M. L. Tainter
C. G. King	John B. Youmans

Contributions may be made payable to the Drummond Memorial Fund and (to facilitate promptness and monetary exchange) forwarded to Professor L. A. Maynard, Cornell University, Ithaca, N. Y.

Clearing House on Public Health Salary Information and Personnel Needs

Professional Development of Engineers

In its Twenty-first Annual Report, the Engineers' Council for Professional Development describes a demonstration to show what can be done to provide the means and incentive for continued professional development of recently graduated engineers. The demonstration, which is being conducted in an actual community situation of the industrial area of Cincinnati, is part of the Council's Training Committee Program "The First Five Years of Professional Development." It stresses orientation and training in industry; continued education; integration into the community; professional registration; self-appraisal; and recommended reading. The project has been built around the fact that three separate elements of community life must be brought together to provide a favorable climate for the professional growth of young engineers—the engineering management group, the engineer's society, and the universities that serve the area. Accredited curriculums leading to the first degree in engineering are also listed in the report. A full sanitary engineering program or an option in civil engineering is indicated at 30 institutions. Engineers' Council for Professional Development, 29 West 39th St., New York 18, N. Y.

Sixth California Salary Report

The sixth annual study of salaries of full-time professional workers in local health departments of California has been published. It covers nearly 2,600 budgeted positions of which 8 per cent are unfilled. This per cent holds for public health nurses. Among sanitarians below the registered grade, 14 per cent of the positions were vacant, and among registered sanitarians, 4 per cent. Physician vacancies were 6 per cent of budgeted positions. The percentage of medical and nursing vacancies is less than in any of the years from 1949 to 1952. Of registered sanitarian vacancies, the percentage is the same as in 1952 and slightly larger than in 1949 and 1951.

The extent of Pacific Coast training and registration of sanitarians is indicated by the fact that in the local health departments there is an average of but one public health engineer to every 35 registered and to every 8 sanitarians below the registered grade.

There are 28 salary tables in the report giving the number of budgeted positions with the minimum and maximum monthly salary in each local health department for each of 28 positions. The data are for the fall of 1953. The report is presumably available from John C. Dement, M.D., chief, Division of Local Health Services, 611 Phelan Building, San Francisco, in whose department the figures are summarized from the Annual Report of Finances and Personnel of Local Health Departments made annually to the division.

Medical Social Work Scholarships

The National Foundation for Infantile Paralysis announces that May 15 is the final date to receive applications for its medical social work scholarships for the academic year 1954–1955. Scholarships are intended for a year's graduate study at any of the 26 accredited schools of social work by persons who have had a previous year of grad-

uate social work education. Applicants must be United States citizens under 38 years of age. Awards are based on the individual needs of the applicants within a maximum set for each school.

This scholarship program was begun in 1945. Since that time 565 awards have been made at a cost of more than three-quarters of a million dollars. In its attempts to alleviate the shortage of medical and medical auxiliary personnel, the foundation has awarded a total of more than 4,100 scholarships or fellowships in various fields.

Applications should be made to the Division of Professional Education, National Foundation for Infantile Paralysis, 120 Broadway, New York 5, N. Y.

Student Nurse Enrollment Static

The November issue of Nursing Outlook reports on student nurse enrollment in 1953. Although over the last five years there has been an increase of 14 per cent in enrollment in basic programs of professional nursing of the United States, this increase was confined to the first three years. Between 1949 and 1951 the increase was 15 per cent, since that time there has been a slight decrease of less than 2 per cent.

During the five years the number of schools has decreased by 15 per cent and the average enrollment per school increased from 73 to 89. More than two-thirds of the schools had fewer than 100 students. In 1953 no students were enrolled in 23 of the country's nursing schools. All but about 12 per cent of enrolled students are in programs accredited by the National League Accrediting Service. Nursing Outlook, 2 Park Ave., New York 16, N. Y. $4 annual subscription; 50 cents single copy.

Human Relations and Personnel

"Trends and Forecasts in Personnel" appears in the December, 1953, issue of Public Management, the monthly journal of the International City Managers Association. "A power mower doesn't sulk because the boss neglects to praise its faithful service," is the author's illustration of the increasing attention that must be paid to the problems of human relations in employment. The author is Harry Rosenberg, director of personnel, Berkeley, Calif. Public Management, 1313 E. 60th St., Chicago 37, Ill. $4 annual subscription; 50 cents a copy.

A Fifth of the Jobs Are Unfilled

A memorandum of the New York State Health Department on medical recruitment lists 221 State Department of Health medical positions in 12 grades and 54 local department positions, of which more than one-fifth are unfilled. In addition, 12 state positions are temporarily filled at a lower level than the scheduled salary, some of them pending adequate field for recruitment. The annual salary ranges of the unfilled positions are from $6,801–$8,231 and up to $13,000. The largest percentage of vacancies, one-half of the scheduled positions, is in the $13,000 salary classification. The next largest, nine out of 19, is in an associate grade with a salary range of from $11,448 to $12,521. Nearly one-third of 32 positions with a salary range of from $6,801 to $8,231 are unfilled.

Of the 11 medical vacancies in local health departments, three are county health commissioners.

Handicapped Workers Fellowships

The National Society for Crippled Children and Adults announces two fellowships to be awarded during 1954 to professional workers with the physically handicapped. Winners will attend the Institute of Physical Medicine and Rehabilitation at New York University's Bellevue Medical Center, June

21–July 16, 1954. Given by the institute in cooperation with the School of Education of New York University, the courses carry regular academic credit at the graduate level. They will offer special emphasis on educational training, counseling, and vocational guidance for the physically handicapped.

The fellowships are the seventh group to be offered by Alpha Gamma Delta, national women's fraternity, and the National Society since 1949. Grants total approximately $300, including tuition, for the four-week program. School officials, guidance teachers and counselors, and other placement and vocational counseling workers with the handicapped may apply. The closing date for receipt of applications is March 15, 1954, and awards will be announced during May. National Society for Crippled Children and Adults, 11 S. La Salle St., Chicago 3, Ill.

Hospital Salaries and Practices

The Hospital Council of Philadelphia has made its annual report of salaries and personnel practices with respect to five groups of workers in 58 of the metropolitan area's hospitals. The groups are general duty and practical nurses, untrained men and women, and clerks. Certain definite trends are noticeable; for example, the shortening of the work week. In 1949 only three hospitals had a 40-hour week for general duty nurses; in 1953, more than half had such hours, 37 hospitals with a 40-hour week, two with less than 40 hours. Salaries have not decreased with the decrease in working hours but have "tended to rise." In nearly half the hospitals, which are on a "straight cash basis" with no maintenance, starting salaries for general duty nurses range from $2,268 to $2,856, representing a 5 and 10 per cent increase, respectively, over the previous year in the lowest and highest starting salaries. Practical nurse starting salaries range from 50 to 15 per cent lower than those of general duty nurses, the greatest gap being in the lowest salaries.

All five categories of workers get a week's vacation after a year's employment. In all but four hospitals general duty nurses get two weeks or longer after a year and in 24 they get three weeks or longer. Among 47 hospitals employing them, only three grant more than two weeks vacation after a year's service to practical nurses. In no hospital do any of the other three categories of workers get more than two weeks' vacation until they have completed five years of service.

Salaries and Personnel Practices, Philadelphia Area, June, 1953. Research Bulletin No. 3–53, Leon A. Korin. Hospital Council of Philadelphia, 311 S. Juniper St., Philadelphia 7, Pa.

How to Select a Medical School

Choice of a Medical School has been published by the Council on Medical Education and Hospitals of the American Medical Association as a guide to prospective medical students. With respect to premedical education it says "the Council and the medical schools strongly urge that he arrange his program so that he will obtain a broad general education."

A list of approved medical schools and schools of the basic medical sciences in the United States and Canada is included, also a list of foreign schools, graduates of which, "on the basis of information presently available . . . medical institutions and medical organizations in the United States would be justified in considering current and past graduates . . . on the same basis that they consider graduates of approved medical schools in the United States." American Medical Association, 535 N. Dearborn St., Chicago 10, Ill.

A Nurse Recruitment Manual

Manual for Student Nurse Recruiters has been prepared by the Committee on Careers of the National League for Nursing. It is intended for recruitment groups in state and local communities. It is designed to stimulate interest in nursing by young women—and men—into actual admissions to approved schools of professional and practical nursing. Its three objectives are to suggest patterns of organization for state and local nurse recruitment committees, provide program ideas and suggestions, and answer some of the most frequently asked questions about recruitment and recruitment programs. Committee on Careers in Nursing, 2 Park Ave., New York 16, N. Y.

Another recruitment tool prepared by the Committee on Careers is the film, "When You Choose Nursing." It shows the varied opportunities of the nursing profession and is designed for use in high schools, clubs, television stations, and commercial theaters.

The film was previewed in January at the Lenox Hill Hospital in New York by the boards of the two national nursing organizations, representatives from allied health fields, and student nurses. It was contributed by Lederle Laboratories, filmed largely at the Hitchcock Memorial Hospital, Hanover, N. H., and produced by Willard Pictures. The 16 mm film is 20 minutes long. National League for Nursing, 2 Park Ave., New York 16; $35. Arrangements can be made for rental.

California Recruits Nurses

The Committee on Careers of the California League for Nursing, which is an affiliate of the National League for Nursing, is carrying on a state-wide recruitment program to interest young men and women in a nursing career. Joint sponsors of the program with the committee are the state hospital and medical associations. Offices have been set up in the league headquarters with a consultant in charge.

Course in Diagnosis of Virus Diseases

A course in the Laboratory Diagnosis of Virus Diseases will be presented by the Laboratory Branch, Communicable Disease Center, March 15–26, 1954, at the Virus and Rickettsial Section Laboratory, CDC, in Montgomery, Ala. Information and application forms from Laboratory Training Services, Communicable Disease Center, Public Health Service, P. O. Box 185, Chamblee, Ga.

Credit Lines

Play for Teaching TB Nursing

The Tuberculosis Nursing Council of Los Angeles County prepared and the National League for Nursing is distributing "Tuberculosis Nursing in Action." This is the script of a graphic play which presents tuberculosis nursing procedures from the time Patsy Tolliver goes to the local tuberculosis association for information until she returns from the sanatorium for further nursing care under the supervision of a public health nurse. It comes with sufficient instructions and suggestions for use in teaching nurses or for the use of some scenes for special groups. Staging and acting can be handled by amateurs. National League for Nursing, 2 Park Ave., New York 16, N. Y.; 60 cents.

Harvard Directory

The Harvard School of Public Health is the second among the public health schools to publish an Alumni Directory. It lists alphabetically each of the 1,569 persons who attended the Harvard School between 1914 and 1953 with degrees and address, by class and geographically. Included also is a summary of 909 degrees granted of which 86 per cent were the master of public health degree. A summary of geographical distribution of living alumni indicates that more than one-fourth are now located in 72 different countries around the world.

In the years 1914–1922, the degrees are for the School of Public Health, operated jointly by Harvard University and the Massachusetts Institute of Technology. During these years fewer than 10 students were registered annually. In the 1923 class, the first year of the Harvard School of Public Health, there were 15 students. That number has been increasing almost year by year until the last three years in which each class has numbered more than 100 students.

In a foreword, Dean Simmons pays particular tribute to the editor of the Directory, Margaret G. Barnaby, who has been secretary of the school since 1937 and thus "served as a focal point between the alumni and their school." Credit Lines adds its commendation with the hope that the other schools may find it possible to follow the lead of Harvard and Hopkins. The latter publishes a directory periodically with its catalogue and announcements.

Mental Hospital Statistics News

The "Proceedings" are now available of the Second Annual Conference of Mental Hospital Administrators and Statisticians called by the National Institutes of Health. Meeting in February, 1952 (News from the Field. "Mental Hospital Statistics." A.J.P.H. 42, 2:768 (June), 1952.), the conference membership was made up of the 11 states that are members of a Model Reporting Area for mental hospital statistics. Included in the "Proceedings" are appendixes with detailed statistics of mental hospitals in the 11 reporting area states. This is a valuable document for administrators and statisticians with responsibility for developing statistics that will be useful to administration and program planning. Gov. Ptg. Office, Washington 25, D. C.; 40 cents.

Annual Reporting without Fanfare

The use of existing publications to carry a health department's annual report to the citizens appears to be gaining ground. The Bulletin of the Kentucky

State Health Department for October, 1953, is called "Look What We Did! A Report for 1952–1953." In 24 two-color pages of text and illustrations (the latter borrowed from the California State Department of Health) a brief mention, with particular reference to accomplishments, is made of each activity of the department.

The California Health Department also uses an October issue of its California's Health to report on the previous year. In this case it is a much enlarged issue. Again in two colors, it is illustrated with charts, photographs, and drawings. Altogether it represents an effective type of reporting on stewardship of a $20,000,000 operation.

The Aged in Honolulu

"A Study of Oahu's Aged, 1953" has been published by a joint Study Committee on the Aged of the Oahu Health Council and the Honolulu Council of Social Agencies. It is largely a background study setting forth the facts as to the extent of aged in the island's population. The percentage of persons 60 years or over in the population was practically as high in 1860 as at present, but constantly decreased until 1910, while on the mainland there was an opposite trend. Since 1910 there has been an upward trend but the ratio of older persons has not yet caught up with that of the mainland. The conclusion is that "agencies charged with the care of the aged should initiate plans to meet this emerging demand with a minimum of delay . . ." and "with initiative, resourcefulness, and foresight."

The report is handsomely printed. Its spiral binding makes for durability and ease in handling. Publication was made possible by a grant from the McInerny Foundation.

Study Committee on the Aged, Honolulu, Hawaii. Price not yet determined.

Materials for Health Information

The Minnesota Department of Health has published for the use of individuals and groups in the state promoting health a mimeographed pamphlet, "Health Information Materials." It lists pamphlets, radio scripts, and newspaper articles that are available from the department. The material is classified by subject and a brief description given of each item. The typing is so clear that mimeographing on both sides of the sheet is not a handicap. And a substantial and well lettered cover lifts it above the level of material that goes in the waste basket without a second look.

Getting Them Young

What is said to be the first junior board of a tuberculosis association in Illinois has been organized by the Pike County Association. It is made up of students from the nine high schools in the county, with the long-range purpose of creating an awareness in these future adults of the need for and services of voluntary agencies. Short-run purposes are a reservoir of volunteers and orientation in what a tuberculosis association does. The first project of this new board was distribution of posters and educational aids for the mass x-ray survey in the county. The secretary of the association is Elizabeth Robertson.

Small Community Refuse Collection

Refuse collection and disposal is one of the most troublesome and expensive services in a municipality that attempts to provide modern conveniences. Part of the difficulty arises over the fact that frequently no one person in the municipality has the time or knowledge to analyze the various possible methods. "Refuse Collection and Disposal for the Small Community" should be of assistance in answering the principal

questions that come up with regard to the type and frequency of collection, the method of disposal, and cost analysis. The Public Health Service and the American Public Works Association are the joint authors. An extensive bibliography is included. Not the least of the volume's value are suggested ordinances for the storage, collection, and disposal of refuse. American Public Works Association, 1313 E. 60th St., Chicago 37, Ill. $2.

Looking Both Backward and Forward

In "Going Ahead Toward Better Health and Longer Life," the Metropolitan Life Insurance Company reviews what it has done by way of health improvement programs and the directions in which it is going ahead. Such earlier programs as the visiting nurse demonstration, the Framingham tuberculosis demonstration, the Thetford Mines demonstration in reducing infant mortality, and the silicosis study are described.

Present-day concern with child safety, school health services, weight control, mental hygiene, health of the aging, and industrial health are graphically described in terms of current programs of the company.

The health activities of the Metropolitan are centered in the Health and Welfare Division which began its work in 1909. It is under the direction of Second Vice-President William P. Shepard, M.D., One Madison Ave., New York, N. Y.

Worth Acquiring

"Food Value Tables," expressed in circle graphs, was devised for use in a short nutrition course. Its author, Eula B. Corbin, assistant professor of home economics, Queens College, New York City, reports that students scan its pages with eagerness and confidence, quickly discovering their own list of good sources of a given nutrient. It has further stimulated interest in nutrition and in food values. Queens College, Flushing, N. Y.; 50 cents.

Annual Reports

"Blueprint for Health" is the 34th annual report of the Public Health Federation of Cincinnati for the year 1951. It outlines six jobs to be done, what progress was made, and what were the failures. Among the failures were the defeat of a bill to reduce the number of health jurisdictions, both in Hamilton County and the state, and insufficient appropriations for state mental hospitals. Among the projects on which progress is listed is a bill to strengthen stream pollution control, an alcoholism clinic and funds for establishing a consultation center, merger of two voluntary heart disease agencies, and a newly organized Cincinnati Safety Council, among numerous others.

The report is interestingly conceived, well printed, and should be suggestive for others struggling with the problem of adequate reporting to constituencies.

Bleecker Marquette is the executive secretary of the federation. 312 W. Ninth St., Cincinnati 2, Ohio. No information as to price.

The 1953 Report of the Philadelphia Nurse Service uses a new technic. In a small 12-page pamphlet brief text is overlaid on tabular data representing one month's record of activities. The test is built around the idea that "bedside care is not all there is to nursing." In 1952, 70 per cent of the nurse visits were made in behalf of patients with long-term illness, half of all visits were made free, and 41 per cent of patients were referred by hospitals, and the average visits per patient numbered eight. Ruth Hubbard, R.N., is the general director, 1340 Lombard St., Philadelphia, Pa.

Books and Reports

All reviews are prepared on invitation. Unsolicited reviews cannot be accepted.

Sexual Behavior in the Human Female—*By Alfred C. Kinsey, et al. Foreword by Robert M. Yerkes and George W. Corner. Philadelphia, Pa.: Saunders (West Washington Square)*, 1953. 842 pp., 151 charts, 179 tables, 4 illus. Price, $8.00.

In the eighteenth century there were two individuals of interest to those who attempt to understand changes in social practice. One was a prominent continental clinician, teacher, and government adviser, Johann Peter Frank. He approached the problems of health, disease, and poverty broadly. In his monumental nine-volume work (*System einer vollständigen Médicinischen Polizei*) he told exactly what should be done for man "from womb to tomb" through legislation, service, and education. His efforts, though widely heralded in his own time, left apparently little mark on subsequent developments.

Another person active in roughly these same times was John Howard, an English country squire who systematically over many years visited hospitals and jails, recording what he found: the weight of the bread available per person, the cases of typhus recorded, the number of inmates and staff—minute details *ad infinitum*. His findings contributed in no small way to the whole stream of activities upon which our modern public health movement rests. The lesson behind these historical observations is that, basic to the sound scientific methodology and development, is the objective recording of facts and their further quantitative analyses.

It is in this light that the Kinsey studies should be viewed. There are many who have preached, interpreted, and argued about sex problems in our times, but few have attempted to record systematically facts about sex behavior. Now Dr. Kinsey and his co-workers have set about to record data collected over the past fifteen years about human sexuality—what people say they do, to a minor extent what they feel about what they say they do, and how these data are related and interrelated to the individual's sex, age, race, religious, and educational backgrounds. The studies have had the sustained support of Indiana University, the National Research Council, and the Rockefeller Foundation.

This volume analyzes the results of a series of carefully planned and checked interviews with 5,940 American females, with comparisons with previous results from 5,300 males. The demonstration that the interview method tactfully used can bring forth so much information about a subject regarding which persons are usually extremely reticent is in itself a contribution to the field.

The study of the females benefited by the criticisms made of the first volume. Statistically speaking, this volume is sound according to the top-flight statisticians who were consulted in its preparation. It will probably not draw as much fire from the experts in this field as the first one did. The authors would, perhaps, have been well advised to modify the title, *Sexual Behavior in the Human Female*, for their conclusions are based on data from "some" females—largely educated, Protestant, urban, adolescent through middle-aged females. They do state that general-

izations have "been restricted to the particular samples that we have had available," and do follow this principle in many, but not all, instances.

In this volume there are also four chapters on comparisons of the anatomy, physiology and psychology of sexual practice in the female and the male and a mass of material from historical, legal, anthropological, and other sources concerning sexuality in man and animals. (There are 47 pages of bibliographical references.) All of these materials demand careful study, for the implications and limitations of the findings are too complicated to encompass in a review of a few hundred words. Each reader will have to find what he wants and needs—but it is clear that no one who attempts to advise on human behavior today can afford not to study for himself the data presented by the Kinsey studies.

Public health workers of all kinds—administrators, educators, nurses, physicians—will find much that is challenging to their day-to-day practice in certain of the findings. For example, a special study might well be made of the relation of these findings to current laws or to accepted practices in many institutions. Other interesting questions are those raised by the differences in practices related to the decade of birth—with, for example, a decline in frigidity in women and a rise in petting and premarital coital experience — suggesting the permanent effects of World War I, the "Jazz Age," Sigmund Freud. In fact, the generation in which the woman was born seemed more important in determining the forms of her sexual activity than the amount of schooling, urban or rural backgrounds, or occupation of her parents.

Many will be concerned that the psychological and emotional aspects of the subject are so largely ignored. But Dr. Kinsey has not said that these are unimportant or do not exist. He has not studied them, and therefore does not discuss them. There are other obvious criticisms: Kinsey has never been a woman; the subject is treated without humor, from too narrow a base; the definition of orgasm in the female is not too clear—but all of these seem unimportant when the chief focus of the research is taken into account, namely, an attempt to describe quantitative sexual behavior in a sample of human females versus males.

We should be grateful that Dr. Kinsey has fearlessly published material that indicates, no matter how experts may disagree on certain conclusions, omissions or methods, how widely out of touch our codes—legal, social, and educational — are with sexual facts. This approach should help us all to look at these problems as they are instead of as we wish they might be. It is as a biologist, a descriptive biologist, that Dr. Kinsey has approached the sexual behavior of the human. As such he seems to have pushed open a door to a field in which, hopefully, many other scientists will now bring their technics, their postulates, their questions. We all have, as Dr. Kinsey says, "the right to investigate, the right to know."

LEONA BAUMGARTNER

Heredity in Health and Mental Disorder—*By Franz J. Kallman. New York: Norton,* 1953. 315 pp. Price, $6.00.

This latest of the Thomas William Salmon Memorial Lecture series is addressed to a wide audience of biologically educated people within and without the service professions of medical care and public health. The book is closely packed with an invaluable experience won from intense study of twins.

This soundly based biological background of "psychiatric genetics" leads the physician and health officer, the educator and the nurse into a fascinating field awaiting intensive cultivation.

The volume is abundantly illustrated with 89 figures showing one and two cell twins at various times of life and with 20 tables for statistical and genetic elaboration of the text.

Part I, "Heredity in Relation to Mental Health," gives in 75 pages the setting of the scene with a brief history of genetics, principles and methods of investigation, and comparative observation of twins as to the genetic aspects of their physical and mental health.

In Part II we are introduced to the relation of genetics to a few classical psychiatric expressions, the psychoneuroses and delinquencies, pathological sex variants, psychotic reaction types, some convulsive conditions, and species vulnerability.

Part III gives in 42 pages a fascinating contribution to mental health planning with wise guiding principles of human genetics as applied to mental health. There follow 27 pages of generous and well selected bibliography and an adequate index of eight pages.

This book calls for concentrated attention in reading, as well as technical familiarity with human biology. The author appeals to the intellectually serious and dedicated devotee of advanced public health. There is no better book to be used as a *vade mecum* of practical human genetics for today.

HAVEN EMERSON

Health Principles and Practice—*By C. V. Langton and C. L. Anderson. St. Louis, Mo.: Mosby,* 1953. 417 pp. Price, $4.25.

The aim of this text for college health courses is given in the preface as the presentation of the functional health knowledge needed by the young person in today's society. In general, the presentation with respect to both personal and community health is straightforward, intelligent, and effective. In the field of community health both needed information and the responsibilities of the individual citizen are stressed. The book is well organized, with a list of stimulating questions and an excellent bibliography at the end of each chapter.

All the topics usual to such a text are covered, and there is an excellent introductory chapter on changing problems and concepts in health. Particularly good are sections on eugenics and heredity, mental health, safety, obesity, sex and reproduction, and alcoholism. The section on federal health services is inadequate in its treatment of the grants-in-aid and cooperative services provided to state and local health departments by the Public Health Service and Children's Bureau, the latter being mentioned only with reference to EMIC. There are some other omissions and some minor inaccuracies, but these deficiencies are more than offset by the general excellence of the presentation. Teachers of health courses for college students will welcome this addition to the field. WILLIAM P. RICHARDSON

Pulmonary Tuberculosis—*By R. Y. Keers and B. G. Rigden (3rd ed.). Baltimore, Md.: Williams and Wilkins,* 1953. 318 pp. Price, $5.50.

The present edition of this standard British handbook for students and practitioners, the first since 1946, represents an almost complete revision, and the authors have succeeded admirably in bringing it up to date. Particularly noteworthy are the excellent sections on the use of chemotherapy, including isoniazid, resectional surgery, and domiciliary management of tuberculosis, the last of which receives more realistic consideration than is generally afforded in this country.

Another feature is the liberal use of x-ray reproductions. These are of good quality and well selected, and their value is enhanced by accompanying line drawings, emphasizing the significant pathological findings. The ar-

rangement of the films in groups rather than interspersed throughout the text, however, makes correlation of description and illustration somewhat difficult.

A few criticisms can be made of the arrangement of the material. BCG vaccination is discussed on page 22 and again on page 310 rather than at one time. Domiciliary management and the aftercare of the infectious case have enough points in common to warrant their being considered together. The section on prevention, coming at the close of the book, seems more or less an afterthought.

In regard to the content, there is little to which one can take exception. Not all pathologists would accept the pathological classification used or the stress placed on the role of atelectasis in collapse therapy. The attention artificial pneumothorax receives is greater than would seem justified on the basis of present experience in this country. These points of difference in no way detract from what is, on the whole, an excellent handbook on pulmonary tuberculosis.

ARTHUR B. ROBINS

A Guide to Human Parasitology for Medical Practitioners—*By D. B. Blacklock, T. Southwell, and T. H. Davey (5th ed.). Baltimore, Md.: Williams and Wilkins,* 1953. 228 pp. Price, $5.50.

The preface to the first edition of this volume states: "This book is intended for the practitioner who, from time to time, will certainly be required to make a diagnosis in diseases caused by animal parasites." This volume will serve as an introduction to the general field of parasitic diseases, but, in the interests of brevity, the authors have left out much clinical material and epidemiological data which would be of value to physicians.

Although the material is presented clearly, the zoological aspects of parasitology are emphasized rather than the medical aspects. Diagnostic aids such as the complement-fixation tests in hepatic amebiasis and the skin test in trichiniasis are not mentioned. In a book written primarily for physicians one would expect to find information on the treatment of various parasitic diseases, yet, this important phase of the subject has been entirely omitted. There are a number of textbooks available in clinical parasitology which present this important subject much more completely and in a more satisfactory manner for the medical profession.

H. W. BROWN

Advances in Veterinary Science—*Edited by C. A. Brandly and E. L. Jungherr* (Vol. 1). *New York: Academic Press,* 1953. 431 pp. Price, $9.00.

This publication succinctly reviews the knowledge gained over recent years from research pertaining to veterinary science and the adaptation of such knowledge to veterinary medical practice and public health.

Upon the premise that, "Animals have always shaped the destinies of man," this book reviews the animal-human relationship from the early "Mosaic" concept to the modern rational evaluation of the "Zoonoses"—the diseases transmissible from animals to man.

The critical discussion of the sulfonamides and the antibiotics orients these therapeutic agents in modern veterinary medical practice. The discussions of the modern concept of virology and of the many diseases of animals and of veterinary public health enhance the readers' appreciation of the economic and public health importance of the diseases of animals and of the importance of veterinary science in the protection of animal and human health.

The bibliography of some 1,400 references commends the editors and authors upon the able manner in which the

voluminous scientific reports of recent years have been appraised and presented.

This is a good book, a timely book, which will provide for all in the medical and public health fields a comprehensive understanding of the contributions accruing from veterinary science to the welfare of man. L. R. DAVENPORT

A Study in Manic-Depressive Psychosis—*By Ake Stenstedt. Copenhagen: Ejnar Munksgaard,* 1952. 111 pp. Price, 20 Swedish crowns.

This study, in the tradition of Rudin and the other European students of the genetics of the mental illnesses, begins with a series of proband cases and studies the incidence of illnesses in their relatives. The probands here are all the cases of manic-depressive psychosis occurring in part of a county in southwestern Sweden from 1919 to 1948. The area had a decreasing population, from 56,950 in 1919 to 43,750 in 1949, the decrease being due chiefly to immigration to the nearby City of Göteburg in which cases could also be traced.

After finding all cases, certain eliminations were made, the final proband figure being 216 cases. Investigation, including direct interviewing in the area covered, dealt with a total of 3,200 persons, of which the author examined 469. Siblings of probands amounted to 347 brothers and 590 sisters, parents 421, children 425. No difference was found between the occupational status of these relatives and the general population. Suicides were found to be more frequent in the relatives of manic-depressive patients than in the general population. No genetic relationship was found between manic-depressive psychosis and any other mental illness investigated, among which were schizophrenia, alcoholism, epilepsy, mental deficiency, and senile psychoses. All classes of relatives mentioned above have similar rates of attack of manic-depressive psychosis, between 10 and 15 per cent, a figure significantly in excess of the expectancy for the general population of Sweden, assumed by the author to be 1 per cent on the basis of other investigations.

In spite of this finding, manic-depressive psychosis is assumed to be a dominant trait genetically, although this would involve a 50 per cent incidence in the siblings, when it is found to be but 14.9 per cent. The difference is considered to be due to failure of the trait to become manifest for unknown reasons in the 35 per cent of unaffected relatives. Unlike previous studies, the author finds no significant difference in the incidence of manic-depressive psychosis between males and females.

A finding that is entirely new in this study is that there is a significantly higher rate of manic-depressive psychosis in the siblings of the probands if the home environment was unfavorable (dissolution of home before age 15) than if it was favorable. This could be interpreted as meaning that unfavorable home conditions affect the degree of manifestation of the genetic tendency to have the disease.

Problems of diagnosis and classification are discussed and the statistical technics used in the calculations are explained. The use of the term "psychopathic" in the European literature is very different from what it is in the United States, but the author gives references to document his usage. Aside from this term, there would appear to be good comparability between the author's usage and that common in the United States.

The proband type of study, of which this is an excellent example, has certain advantages for the study of diseases of all kinds which have low incidence, but it is doubtful that the basic problems of the epidemiology or even the genetics of the mental illness can ever be solved through it. Such studies can set up

useful hypotheses, as this one does, are productive of methodological advances, as this one is; but the questions involved will probably eventually have to be settled by population-wide studies or cohort studies with longitudinal histories. Such methods are not yet available and will certainly be very expensive to carry out, but it is unlikely that the critical experiments necessary can be done by other available methods.

PAUL V. LEMKAU

Epidemics in Colonial America—*By John Duffy. Baton Rouge, La.: Louisiana State University Press,* 1953. 274 pp. Price, $4.50.

The role of disease as a significant element in human history has long been recognized. Unfortunately, however, the problem has not received the detailed monographic study upon which relatively reliable conclusions could be based. In fact, more often facts have been sought to support a predetermined conclusion, as for instance in the Jones-Ross malarialistic interpretation of the decline of ancient Greece. The volume under review is not in this category.

The author undertook to study epidemic disease in colonial America, to identify the individual diseases, and to determine w. ` effects, if any, their occurrence had upon the development of the colonies. The diseases considered are smallpox, diphtheria and scarlet fever, yellow fever, measles, whooping cough and mumps, respiratory diseases, as well as a mixed group of agues, fluxes, and poxes which included such diseases as malaria, dysentery, typhoid fever, typhus, and venereal diseases.

For the most part this monograph is based on contemporary sources and each major contagion is traced more or less chronologically. In his last chapter the author attempts to sum up the findings and to assess their significance. From a social and economic viewpoint, the author believes that malaria, dysentery, and respiratory diseases were much more important than smallpox, yellow fever, and diphtheria. The impact of the latter was more sudden and created an atmosphere of terror, so that they stand out more prominently. One is reminded of the effect on the public today of such diseases as rheumatic fever and poliomyelitis. As to the effect of epidemic diseases upon colonial development, Mr. Duffy comes to no clear-cut conclusions. He recognizes that, despite devastating epidemics, the colonies increased in wealth and population. Furthermore, the eighteenth century brought a definite improvement in colonial health. This may be attributed to rising standards of living, while medicine, except possibly for variolation, contributed little to improved health conditions. This phenomenon was true as well, if not to the same degree, of contemporary England and France, and leads to a conclusion intimated but not explicitly drawn by the author. This is that a progressive expanding economic and social system will be able to overcome the effects of epidemic waves of disease even when technical means for dealing with such health problems are not fully adequate for the task. This has been shown also in relation to malaria as well as other health problems.

One minor flaw may be mentioned. Mr. Duffy relies on Creighton's statement that scarlet fever and diphtheria were not separate and distinct diseases in the eighteenth century and hence could not be traced separately. Had he gone to Bretonneau's classic description of diphtheria he would have found that earlier observers, dating back at least to the sixteenth century, had observed distinctions between the two conditions. In fact, the first systematic description of diphtheria was given by Francis Home in 1765.

This volume is highly recommended to anyone interested in the history of

disease and public health in America. More studies of this kind are needed to provide a firm basis for a genuine history of American public health.

GEORGE ROSEN

Childbirth Without Fear: The Principles and Practice of Natural Childbirth — *By Grantly Dick Read (rev. and enlarged). New York: Harper,* 1953. 298 pp. Price, $3.00.

The new, revised edition of this book enlarges on this "new approach to obstetrics" and explains the thinking, study, experience, and discoveries on which it is based.

Education, exercises, diet, the place of drugs and anesthesia, as well as their misuse and harmful effects, breast feeding, rooming in, the husband's role, and the conduct of pregnancy and labor, with due consideration for each mother's emotional reactions and their effects, are discussed more fully in this new edition than in the earlier American one.

Doctors, nurses, and midwives who are eager to help women overcome their fear of childbirth and prepare themselves to use well the natural forces within their own bodies for carrying their babies comfortably and bringing them into the world without surgical intervention or the need for prolonged deep anesthesia will want to read this book. There is much of value here, too, for expectant mothers and fathers, although some of it is rather strong fare for those who accept, while their doctors reject, Dr. Read's "new approach."

ANNE A. STEVENS

Control of Communicable Diseases — *By Hugh Paul. New York: John de Graff,* 1953. 526 pp. Price, $9.50.

The author has compiled an excellent reference book for general practitioners covering the field of communicable disease control. His categories for discussion are well selected. A large section is devoted to the subject of "The Household Diseases" which includes all the infectious diseases of childhood, as well as pneumonia, influenza, hepatitis, etc. "The Epidemic Scourges" include smallpox, tuberculosis, venereal disease, and cancer. There is a section on "Diseases Associated with Food and Water," and a short section on "The Neurotrophic Infections." The book ends with a section "The Insect Foe" and a short final section "Control Measures."

Dr. Paul's illustrative data are taken mainly from the records of England and Wales and his book is planned primarily for the general practitioners of the United Kingdom—but it has a real value to medical practitioners in America—and in fact in all parts of the world. Illustrative material is simple but clear. There is a good index. The foreword is by Dr. G. S. Wilson.

WILSON G. SMILLIE

The Conception of Disease, Its History, its Versions and Its Nature —*By Walther Riese. New York: Philosophical Library,* 1953. 120 pp. Price, $3.75.

In this study the author endeavors to analyze varying concepts of disease that have been held at different times. The purpose of the analysis is to clarify the utility and limitations of the various ideas. By means of the historical approach, Dr. Riese tries to place each concept that he considers in its contemporary setting. Among the topics considered are the Stoic and Platonic ideas of disease; the Hippocratic, Galenic, and anatomical concepts; and then the etiological, social, psychological, ontological, biographical, and metaphysical conceptions. Despite good intentions and a significant problem, the result has not been successful. There are several reasons for this. In the first place, while there are a number

of provocative ideas in the volume, the thinking lacks precision and it is sometimes difficult to know just what the author is driving at. Second, lack of clarity in use of language creates a further barrier to understanding. Public health workers sufficiently interested in the philosophy of disease and health who take the trouble to read this essay carefully will track down a few significant ideas. Others can afford to pass it by. GEORGE ROSEN

Communicable Disease Control—*By Gaylord W. Anderson and Margaret G. Arnstein (3rd ed.). New York: Macmillan,* 1953. 500 pp. Price, $6.50.

The third edition of this volume by Anderson and Arnstein is of a quality to assure that the book will maintain the place it has long held in American practice of communicable disease control. Both authors have passed to high-level academic and administrative posts, but both maintain that familiarity with problems of the field which came originally from their own practical experience and this continues as a strong feature of the text. Granted that practical understanding of behavior of communicable disease is to be learned through apprenticeship in the field, this is one of the few places in any language where the principles and methods of epidemiological investigation are set down in orderly fashion as a guide to the beginner. In this edition case-finding procedure has increased attention.

The new things are here, the current developments in antibiotics, chemoprophylaxis, insecticides, and immunizing agents. Parts of the previous text have been expanded into a new chapter on school problems, along with presentation for the first time of hepatitis and Q fever. The authors evaluate communicable disease control in relation to other parts of the present-day public health program, stressing that gains must be held, but that with lesser relative importance comes greater need for knowing that the things which are done are useful and not inhibitive of other and sometimes more significant activities. They recognize no sacred dogma; witness the recommendation that feces and urine of typhoid patients be disposed of down the toilet, untreated, in cities having an adequate sewage disposal system, asking if that is not what the system was built to do and what it does with unknown amounts of similarly contaminated material.

The book maintains its established style. The language is simple, the diction forthright, with few wasted words. The policy of citing review articles in readily accessible journals in preference to original sources is in accord with the practical uses for which the book is intended. This reviewer has a strong aversion to footnotes but might as well confess going from page to page in search of them; some of the most pertinent points were thus emphasized. The theme around which the book is built is that essential epidemiological facts are the principal requisite in determining what a control program should be.

JOHN E. GORDON

The Retirement Handbook—*By Joseph C. Buckley. New York: Harper,* 1953. 324 pp. Price, $3.95.

The literature on retirement, which has been increasing in the past dozen years, has a worthy addition in this volume. When one reads this book he will wonder what there is left to be said on the subject. It is the sort of book that should be referred to several times a year in advance of retirement by the prospective retiree and his wife, and for a long while afterward. It is a gold mine of suggestions and ideas as to what, when, where, why, and how of retirement.

Now that retirement at age 65 or thereabouts for all gainfully employed has become the social and economic

pattern, the way of life for the later years calls for some definite planning if it is to be a satisfying experience. This book has been written in the second person singular by a busy and observant business executive who has made the subject a hobby and has gathered his data from many sources. Even if one has crossed the line and feels that he is well adjusted to retirement, he will find the book interesting and stimulating.

RAY P. KAIGHN

The Metabolism of the Tubercle Bacillus — *By William F. Drea and Anatole Andrejew. Springfield, Ill.: Thomas,* 1953. 488 pp. Price, $12.50.

The authors of this monograph have attempted to fill a need in the field of tuberculosis bacteriology which has existed for 20 years. No comprehensive review of this important subject has appeared since the classic publication of Wells and Long entitled *Chemistry of Tuberculosis,* last published in 1932.

Chapter I serves as a review of nutrition and growth requirements of tubercle bacilli.

It is apparent that the authors were most familiar with the problems of depth growth of tubercle bacilli and respiration of these microorganisms. This is reflected by the excellent presentation in Chapters II and III. The information will be most valuable to workers concerned with fundamental research in the field of chemotherapy and host-bacteria relationships, since the environment in host tissues probably more nearly simulates the conditions described in submerged growth.

Chapter IV, which deals with enzymes and enzyme systems, merely serves to whet the appetite of the reader. General principles of enzymology are discussed, but this chapter suffers from a lack of critical evaluation of the technics employed by various workers.

The final chapter (V) closes with a review of the products of metabolism of the tubercle bacillus. In this chapter the significant contributions of Robert Koch, Esmond Long, Florence Seibert, and Rudolph J. Anderson are brought into focus.

The large number of illustrations and tables serve to indicate the extensive bibliography reviewed by the authors. Despite the fact that Drs. Drea and Andrejew fail to critically analyze many of the studies reviewed in their text, they give sufficiently complete summaries of other investigators' findings to make the reader aware of the importance of individual observations.

Every worker concerned with research aspects of tuberculosis bacteriology will profit by having this text available as a ready reference to the complex problems involved in the metabolism of the tubercle bacillus.

MARTIN M. CUMMINGS

Training and Research in State Mental Health Programs. *Chicago, Ill.: Council of State Governments,* 1953. 380 pp. Price, $5.00.

This study represents a significant contribution to the revitalized mental health movement that has been gathering momentum since the end of World War II. It is both a progress report on the constructive developments that have been taking place in this field during recent years and a reminder that mental illness is still a staggering problem of tremendous magnitude.

The volume is a sequel to an earlier study prepared by the Council of Governments for the Governors' Conference under the title, *The Mental Health Programs of 48 States.* Whereas, the latter dealt with broad aspects of the subject, including the administration of state hospital systems, their plant, personnel, and programs of care and treatment, the current study is concerned with two phases of action that are considered vital to permanent progress in the field: training of the personnel who

are needed in it, from psychiatrists to hospital attendants, and research into the causes, prevention, correction, and cure of mental disorders.

After reviewing currently prevailing practices with respect to both the training of personnel and research activities in the 48 states, the study offers a number of highly practical recommendations. These are clearly and simply enunciated throughout the presentation, which is amply illustrated with tables and charts. In the appendix there are detailed statistics and tables relevant to the text, as well as a number of exhibits which formed the basis for many of the recommendations in the report.

This document does not deserve the fate of most reference books. It has an important message for every person who is concerned. It deserves to be read, not just by those responsible for the administration of psychiatric facilities —but by everyone, lay or professional, who is concerned about the problems of mental illness and eager to participate in the development of a more adequate mental health program throughout the nation. ALEX SAREYAN

Malaria Terminology. Report of a Drafting Committee Appointed by the World Health Organization— *By Sir Gordon Covell, Paul F. Russell, and N. H. Swellengrebel. New York: Columbia University Press,* 1953. 82 pp. Price, $1.00.

This is a revision of the *Report on Terminology in Malaria,* now out of print, published in 1940 by the Malaria Commission of the League of Nations. During this interval of nearly 13 years, exceedingly important malariological events have occurred. The use of residual insecticides against adult anophelines has changed both the strategy and tactics of control. This has contributed substantially to the dramatic reduction, or even the disappearance of endemic malaria in many large areas of the world. Multiplication within the fixed tissue cells of vertebrates has been observed as a regular process in the life cycle of malaria parasites. New and more effective drugs, some of them active against these fixed tissue stages, have been developed and evaluated on tremendous scales, made possible for the most part by military activities in malarious areas. From these and other significant developments in this field has emerged new language, which has outmoded older expressions; thus the time is ripe for a new dictionary of malariology.

While the monograph has gone far toward achieving this objective, it is less than adequate in certain respects. In form, it is divided into two major sections. The first of these consists of "Commentary" on the malaria parasites and the infections they produce, on the measurement of malariousness, and on the terms applied to the insect vectors of malaria. The second section is entitled "Glossary" and consists not only of definitions but, where more extended explanations are in order, of references to appropriate parts of the "Commentary."

The discussion of the names of malaria, of malaria parasites, and of the types of infection which each causes is excellent, as is the extended definition of the terms related to parasite forms and the various categories of asexual reproduction occurring outside of red blood cells in vertebrates. This last is illustrated diagrammatically with great effectiveness. The terminology used in describing the nature and course of paludic infections is also accorded very adequate treatment—though congenital malaria, transfusion malaria, and the malaria transmitted by the contaminated injection apparatus of drug addicts are not mentioned in the "Commentary" or the "Glossary." With reference to antimalarial drugs, the committee points out that, since malaria

parasites are now known to occur both within red blood cells and fixed tissues of vertebrates, it would be appropriate to qualify nouns such as *schizonticide* and its derivatives by the restrictive expression *blood* or *tissue*.

The terms and concepts used in describing and appraising the intensity of malaria in population groups are discussed in some detail; indeed, this section constitutes two-fifths of the total "Commentary" (15 pp.). *Incidence* and *prevalence* are mentioned without any obvious appreciation of the precise statistical differentiation which is generally applied to them, a usage which presumably should be followed by malariologists as well as other communicable disease specialists. Only a half-page is devoted to descriptive phrases used in connection with antivectoral control measures.

Perhaps, because of the omission of references to the abundance of new information available concerning insecticidal technology or antimalarial drugs (glossaries dealing with these subjects are being prepared by other WHO groups), this recapitulation of malaria terms seems to be oriented more strongly to the past than to the present, much less the future. The new parasitological terminology mentioned above is an outstanding exception to this general observation. It appears to the reviewer that the modern concepts of malaria control and prevention should merit as much space as malariometry. With world-wide malaria eradication advertised as one of the goals of the WHO, with the controversial word *eradication* now being used in various distinctive ways, with the criteria of malaria eradication being developed for certain areas, with the evolution of surveillance methodology and possibly other approaches to the maintenance of the status quo after the eradication of endemic malaria, there are many new and forward-looking terms that should have been included, discussed, and appraised in this monograph.

JUSTIN M. ANDREWS

Recreation for the Aging—*By Arthur Williams. New York: Association Press*, 1953. 192 pp. Price, $3.00.

Here is a book that group leaders have been needing for a long time. It is a compendium of helpful suggestions on group activities for the elderly that have been well tested by those who have had the direction of program activities for older persons in churches, clubs, camps, and institutions. The author is a well known authority in the field of recreation and his book reflects his wide experience as well as his sympathetic understanding of the craving of the aging for fun and fellowship from which too often they are deprived.

The well written chapters on program activities for social events, arts and crafts, hobbies, music, drama, and service to authors are packed with good ideas. One of the tragedies of old age is the sense of having been put "on the shelf." The book sheds light on how resentment or resignation to this too common situation may be overcome through the organization of community groups or clubs of elderly people and how successfully it has been worked out in various cities and towns across the country.

Activities for the handicapped and shut-ins are not overlooked. There is a richly suggestive chapter for nurses or others responsible for the care of elderly persons who are "out of circulation."

This book should be a *must* for leaders in social service, churches, clubs, or, any organization concerned with making life more worth-while for the aging.

RAY P. KAIGHN

Standards of Care for Older People in Institutions. Section 11,

Methods of Establishing and Maintaining Standards in Homes for the Aged and Nursing Homes. *National Committee on the Aging. New York: National Social Welfare Assembly,* 1953, 112 pp. Price, $1.00.

This well written report of a study begun in the fall of 1951 under a grant from the Frederick and Amelia Schimper Foundation consists of four parts and an appendix which analyze the licensure and accreditation program of each state as of January, 1953.

Many underlying principles affecting accreditation are emphasized. According to this publication, those engaged in efforts to elevate standards of care in nursing homes hold that two factors primarily influence the quality of care in any home. They are the character of management and personnel and consultation and information services by trained personnel (supervisory and consultative) provided by or available through the accreditation agency.

While those who have been striving to achieve realistic "comprehensive standards" rather than "minimum requirements" will profit from study of the entire report, they will find Chapter VII, especially the section on "Administrative Aids," particularly rewarding.

State licensing agencies admit a shortage of qualified personnel to do as much as is required to protect older persons in nursing homes against exploitation, neglect, or abuse, yet the report relates that state authorities show mixed reactions to the idea that the development of a counterpart of the state staff by local government would be of value. JOSEPH H. KINNAMAN

Books Received

Listing in this column acknowledges the receipt of books and our appreciation to the senders. Space and the interests of readers will permit review of some, but not all, of the books listed.

AARSAGERNE TIL FOR TIDLIG FODSEL (Causes of Prematurity) WITH AN ENGLISH SUMMARY. Svend Norregaard. Copenhagen, Denmark: Arne Frost-Hansens Forlag, 1953. 240 pp.

ADVANCES IN THE CONTROL OF ZOONOSES. Published jointly by FAO and WHO. New York: Columbia University Press, 1953. 275 pp. Price, $3.00.

ANTIBIOTICS. F. A. Robinson. New York: Pitman, 1953. 132 pp. Price, $3.00.

BRITISH MEDICAL BULLETIN VOL. 9, No. 3: VIRUSES IN MEDICINE. C. H. Andrewes, et al. London, England: British Medical Bulletin, 1953. pp. 169–244. Price, $2.75.

COMMUNITY HEALTH ACTION. Paul A. Miller. East Lansing, Mich.: Michigan State College Press, 1953. 192 pp. Price, $3.00.

COMMUNITY ORGANIZATION. Sidney Dillick. New York: Woman's Press, 1953. 198 pp. Price, $4.00.

CULTURAL PATTERNS AND TECHNICAL CHANGE. Edited by Margaret Mead for UNESCO. New York: Columbia University Press, 1953. 348 pp. Price, $1.75.

DIABETIC CARE IN PICTURES. Helen Rosenthal and Joseph Rosenthal (2nd ed.). Philadelphia, Pa.: Lippincott, 1953. 164 pp. Price, $3.00.

DISTRIBUTION OF HEALTH SERVICES IN THE STRUCTURE OF STATE GOVERNMENT 1950. PART 3. Public Health Service Publication No. 184. Aaron W. Christensen, Evelyn Flook, and Georgie B. Druzina. Washington, D. C.: Gov. Ptg. Office, 1953. 277 pp. Price, $.65.

HANDBOOK OF PROBABILITY AND STATISTICS WITH TABLES. Richard S. Burington and Donald C. May, Jr. Sandusky, Ohio: Handbook Publishers, 1953. 332 pp. Price, $4.50.

INFLUENZA—A REVIEW OF CURRENT RESEARCH. WHO Monograph Series No. 20. New York: Columbia University Press, 1954. 224 pp. Price, $2.50.

KNOW YOUR DOCTOR. Leo Smollar with Neil Morgan. Boston: Little, Brown, 1954. 173 pp. Price, $3.00.

MEDICAL STAFF IN THE HOSPITAL, THE. Thomas R. Ponton (2nd ed.). Completely

revised by Malcolm T. MacEachern. Chicago: Physicians' Record Company, 1953. 373 pp. Price, $7.50.

NURSE IN THE PUBLIC HEALTH PROGRAM, THE. Pearl Parvin Coulter. New York: Putnam's, 1954. 309 pp. Price, $4.75.

PAYING FOR MEDICAL CARE IN THE UNITED STATES. Oscar N. Serbein, Jr. New York: Columbia University Press, 1953. 543 pp. Price, $7.00.

PNEUMOCONIOSIS ABSTRACTS. Vol. I, 1926–1938. Bulletin of Hygiene, Bureau of Hygiene and Tropical Diseases (British). New York: Pitman, 1953. 347 pp. Price, $12.50.

PSYCHIATRIST: HIS TRAINING AND DEVELOPMENT, THE. Report of the 1952 Conference on Psychiatric Education. Washington, D. C.: American Psychiatric Association, 1953. 214 pp. Price, $2.50.

PSYCHOANALYTIC STUDY OF THE CHILD. Vol. VIII. Edited by Ruth S. Eissler. New York: International Universities Press, 1953. 412 pp. Price, $7.50.

RECOMMENDED PRACTICE FOR RESIDENCE LIGHTING. Prepared by the Committee on Residence Lighting of the Illuminating Engineering Society. New York: Illuminating Engineering Society, 1953. 44 pp. Price, $1.00.

RELATION OF LEAN BODY WEIGHT TO METABOLISM AND SOME CONSEQUENT SYSTEMATIZATIONS. Albert R. Behnke. New York: Annals of the New York Academy of Sciences, 1953. 48 pp. Price, $1.25.

RURAL SOCIAL SYSTEMS AND ADULT EDUCATION. Committee Report by Charles P. Loomis, Chairman. East Lansing, Mich.: Michigan State College Press, 1953. 392 pp. Price, $5.00.

SALMONELLAE AND SHIGELLAE. Alfred J. Weil and Ivan Saphra. Springfield, Ill.: Thomas, 1953. 247 pp. Price, $7.75.

SAVING CHILDREN FROM DELINQUENCY. D. H. Stott. New York: Philosophical Library, 1953. 266 pp. Price, $4.75.

SCIENCE AND MAN'S BEHAVIOR. Trigant Burrow. New York: Philosophical Library, 1953. 564 pp. Price, $6.00.

SERGEI N. WINOGRADSKY — HIS LIFE AND WORK. Selman A. Waksman. New Brunswick, N. J.: Rutgers University Press, 1953. 150 pp. Price, $4.00.

SOUND MEASUREMENT PACKAGE. American Standards Association, Inc. New York: American Standards Association, 1953. Price, $7.50.

SYMPOSIUM ON THE LEPTOSPIROSES—DECEMBER 11–12, 1952. Army Medical Service Graduate School, Walter Reed Army Medical Center. Washington, D. C.: Gov. Ptg. Office, 1953. 224 pp. Price, $1.00.

TRIUMPH OF LOVE. Leona S. Bruckner. New York: Simon and Schuster, 1954. 213 pp. Price, $3.00.

VITAL STATISTICS OF THE UNITED STATES 1950. Vols. II and III. Vol. II—MARRIAGE, DIVORCE, NATALITY, FETAL MORTALITY AND INFANT MORTALITY DATA. 448 pp. Price, $3.25. Vol. III—MORTALITY DATA. 207 pp. Price, $4.00. Prepared under the supervision of Halbert L. Dunn. Washington, D. C.: Gov. Ptg. Office, 1953.

A Selected Public Health Bibliography with Annotations

Old Folks — Good news for you! Your chances of surviving to the ripe old age of 65 improve every year. If you are 40, and so are well advanced in your career you now have better than 7 chances in 10 "of living to the end of (your) productive life"—it says here. Of course, if you are a woman your mathematical chances are still higher.

ANON. The Chances of Living To and Beyond Age 65. Statist. Bull. Metrop. Life Insur. Co. 34, 11:1 (Nov.), 1953.

They Falter, Fumble, and Forget —This may not come as spot news, but accidents are a major cause of death among the aged. (Only two causes are higher.) A telling statistical study reveals that falls and automobiles cause much the biggest share of all these accidental deaths; the only other important cause is burns—running a weak third. Gruesome as the record is, it is improving, be it added.

ANON. Accident Toll High Among the Aged. Statist. Bull. Metrop. Life Insur. Co. 34, 10:5 (Oct.), 1953.

"Jargon Swamps Thought" — The habit of talking with cant words (jargon) destroys the power of seeing things plain. "I'll contact you to formalize the agreement" says the man who means "I'll call at your office to sign the contract." On this the writer comments: "The former smells of inflated ego, it fills the mouth in a silly, bumptious way." Don't you want to read the rest? It will do you good.

BARZUN, J. English as She is Not Taught. Atlantic Monthly 192, 6:25 (Dec.), 1953.

Easy to Cure, But Difficult—A South African physician and a FAO official made a trans-African trip for WHO to study kwashiorkor and this appears to be a summary of their report. Even if you are less than wildly concerned about kwashiorkor, you will be well repaid for hunting out this fine example of good writing (for the intelligent laity) on a complex social problem.

BROCK, J. F. The Red-Headed Africans. Atlantic Monthly 192, 6:68 (Dec.), 1953.

Indivisibility of Health Services —Expensive, indeed, are the difficulties emerging from the disjointed (British) medical care structure under which hospitals and specialists are placed under one authority, family doctors under another, and home care and preventive medical services under still another authority. Apropos of nothing, this I liked: "It is no more reasonable to expect people to know by instinct how to care for their ageing relatives than it is to expect the young mother to know by instinct the best way to care for her baby."

BROCKINGTON, F. Cooperation in the Health Services. Canad. J. Pub. Health 44, 11:407 (Nov.), 1953 (see also) GAWNE, S. C. Some Reflections on Co-ordination in the Health Service. Pub. Health 67, 3:34 (Dec.), 1953.

Public Health Is People — A USPHS officer tells a WHO audience that medical students should have the benefit of what social sciences can tell them about patients as people. He recounts what some American medical schools are doing to equip the new generation of physicians for a more productive alliance with public health.

DEARING, W. P. New Orientation in the Teaching of Preventive Medicine. Pub. Health Rep. 68, 12:1147 (Dec.), 1953.

Are Hazards Exaggerated?—Practically all insecticides have some toxic effect upon man, but this does not mean that they cannot safely be used. As everyone knows, there are two hazards —occupational and food contamination. Both can be avoided by intelligent use. A table lists 20 odd substances with weird names or symbols. Most of us are on speaking terms with only DDT, but here are many more you should know about.

DECKER, G. C. Insecticide Toxicity Problems. Modern San. 5, 11:26 (Nov.), 1953.

Part of Health Unit Plan—In one Canadian province the health department sets up a complete (and practically free) laboratory and x-ray service to be supported jointly by the communities served and the province. Diagnostic services are only for patients referred by family doctors. The patients think the facilities are fine, but the medical societies protested—at the beginning.

ELLIOTT, M. R. Prepaid Diagnostic Services in Manitoba. Canad. J. Pub. Health 44, 11: 393 (Nov.), 1953.

Instead of Lectures—Three years' experiences in working out "curbstone consultations" at sessions of the Southern Branch, APHA, are reviewed in instructive detail. The second writer concludes: "There is a strong conviction that this innovation has a significant contribution to make to meetings . . ." Further experience may increase the usefulness, they think.

FREEDMAN, B., and RICHARDSON, W. P. Curbstone Consultation: An Effort to Improve Communication at Annual Meetings. Pub. Health Rep. 68, 12:1213 (Dec.), 1953.

Avoiding the Final Insanity—If human survival isn't public health it should be! At any rate it is of prime importance to all, including health workers. "Most of us," the speaker pointed out, "go on with our daily concerns as though we were threatened by nothing more serious than a brief conflict, limited in area, and fought with bows and arrows." Would you have to plead guilty?

KEENLEYSIDE, H. L. Education or Catastrophe. Adult Leadership 2, 7:4 (Dec.), 1953.

Lighting Up Weak Spots—Offered here is an ingenious way of catching and keeping the flagging attention of bored or resistant food-handler educatees. There seem to be possibilities in this method for involving other groups among the intended beneficiaries of our public health educational ventures. You may want to look into this.

KELLY, E. J. The Food Handler's Class and Black Light. Modern San. 5, 12:17 (Dec.), 1953.

In Fewest Words—If you have a cardiovascular disease, avoid obesity: If you work with that kind of patients, warn them. For reasoning, see paper.

MASTER, A. M., et al. Relationship of Obesity to Coronary Disease and Hypertension. J.A.M.A. 1953, 17:1499 (Dec. 26), 1953.

Flies and Polio—Though you know better; some day a panicky public may demand that your department embark upon a fly control campaign and you may waver. In that case you will need all the support you can find to keep on the steady course and you will be glad you saved this account of a fly control project that failed to stop a polio epidemic. In rural areas virus can be recovered from flies and privy vault contents, but it is contact that counts, nevertheless.

PAFFENBURGER, R. S., JR., and WATT, J. Poliomyelitis in Hidalgo County, Texas, 1948: Epidemiologic Observations (and two related papers). Am. J. Hyg. 58, 3:269 (Nov.), 1953.

Progress Report—Some of the many things still to be worked out before a polio vaccine is ready for large-

scale immunization are clearly set forth, and you will want to know what remains to be done. The studies are proceeding methodically and satisfactorily.

SALK, J. E. Recent Studies on Immunization Against Poliomyelitis. Pediatrics 12, 5: 471 (Nov.), 1953.

The Subdivision Blues — "Community enlightenment is, of course, an essential ingredient of a health department's program." One could wish that those two words "of course" slipped into this quotation because community enlightenment was a universal practice, rather than because of their implication of general theoretic acceptance. The paper is a broad discussion of a number of sanitary problems arising in a county too close for comfort to a big city.

SMITH, J. K. Sanitation Problems in a Suburban Area. Pub. Health Rep. 68, 12: 1161 (Dec.), 1953.

If additional information is desired regarding the articles listed in this Bibliography, please communicate directly with the publications in which they appeared; the addresses are furnished for your convenience.

Adult Leadership, Adult Education Association of the United States, 743 N. Wabash Ave., Chicago 11, Ill.

Am. J. Hyg. (American Journal of Hygiene), 615 N. Wolfe St., Baltimore 5, Md.

Atlantic Monthly, 2 West 45th Street, New York, N. Y.

Canad. J. Pub. Health (Canadian Journal of Public Health), 150 College St., Toronto 5, Ontario, Canada.

J.A.M.A. (Journal of the American Medical Association), 535 N. Dearborn St., Chicago 10, Ill.

Pediatrics (Journal of the American Academy of Pediatrics), 301–327 E. Lawrence Ave., Springfield, Ill.

Modern San. (Modern Sanitation), 855 Avenue of the Americas, New York 1, N. Y.

Pub. Health (Public Health), Society of Medical Officers of Health, Tavistock House, South, Tavistock Square, London, England.

Pub. Health Rep. (Public Health Reports), Superintendent of Documents, Gov. Ptg. Office, Washington, D. C.

Statist. Bull, Metrop. Life Insur. Co. (Statistical Bulletin Metropolitan Life Insurance Company), One Madison Avenue, New York 10, N. Y.

Association News

Action on Affiliated Societies and Branches

It will be recalled that since September, 1950, a Reference Committee on Relationships with Affiliated Societies and Branches has been studying these problems as they affect the American Public Health Association. A report of the Reference Committee was published in the Journal in April, 1953 (pages 470–473) for comment by the membership. It was distributed to the officers of the affiliated societies and the branches and official action by societies and branches urged. The results were made available to the members of the Governing Council in advance of its meeting on November 9, at which time an entire day was spent in consideration of the Reference Committee report. Exhaustive discussions were conducted in four workshops from which reports were brought to the council as a whole. There follows an account of highlights of the actions taken by the Governing Council on these recommendations.

The most important council action on this subject was as follows:

> It was voted that it is the sense of the Governing Council that regional branches be continued, or established in accord with the wishes of the states in the region, and that the question of the relation of such branches to the affiliated societies and the national organization be further explored by a reconstituted committee which should take into account the discussions of the Governing Council on these matters.

Other decisions made by the Governing Council as a result of the reports from the discussion groups are shown below:

1. A policy of recommending and supporting the formation of strong public health associations in every state and territory was adopted unanimously.

2. The Reference Committee recommended that fundamental organizational relationship between the state societies and the APHA should remain unchanged for the present, i.e., on the basis of affiliation. This recommendation was adopted unanimously by the Governing Council.

3. The Reference Committee recommended that joint regional meetings should be held and joint committees or councils established when it seems useful for purposes of exchanging ideas, meeting common problems, or for regional planning. These regional groupings might well be more flexible than the presently constituted branches. The Governing Council deferred action on this recommendation for consideration of the Reference Committee, which is to be expanded with more representation from affiliated societies and branches.

4. The Reference Committee recommended that each affiliated state society should continue to have a representative on the Governing Council whose election is the responsibility of the state society. There is considerable advantage in the present system for selecting Association-wide elective councilors who are designated for three-year terms. With the expected growth in number of state societies, consideration will need to be given to re-establishing the balance with the elective councilors who even now constitute less than one-third of the Governing Council. These recommendations were adopted unanimously.

5. The Reference Committee recom-

mended that the present branches and other public health associations, not state affiliated societies, should be invited to send an official observer to the Governing Council meeting with the privilege of the floor but without vote. The committee pointed out that it seems illogical to give duplicate representation to any area of the country, either a group of states or a city within a state. This recommendation to the Governing Council was deferred for further consideration by the expanded Reference Committee.

6. The Reference Committee recommended that the system of cash rebates to affiliated societies and branches should be discontinued. The Governing Council deferred action on this recommendation for consideration of the expanded Reference Committee.

7. The Reference Committee recommended that staff services to affiliated societies, actual and potential, should be substantially strengthened. The Association should invest an amount at least equal to that presently being rebated to give new specific services to the state societies. These proposed services were spelled out in the original recommendation. The Governing Council also deferred this proposal for consideration of the expanded Reference Committee.

8. The Reference Committee recommended that the successful history of the APHA should lead the Association to urge our neighboring countries to the south to form strong national associations. The APHA should offer the hand of friendship and all assistance within its power to any interested national society. An exchange of experience was approved and, when mutually agreeable, the APHA should exchange official delegates to annual meetings with other national societies. Cooperation also should extend to a broad invitation to participate in meetings through groups or individuals; through an exchange of literature with Latin American societies; through continuation of the policy of making available for translation into Spanish, French, and Portuguese the technical publications of the APHA; and through dispatch of copies of the Journal to university and health department libraries; and in other ways making available the extensive experience of the Association headquarters in such matters as accreditation of schools of public health, evaluation of health department activities, and definition of desirable educational qualifications of various health workers. This recommendation was adopted unanimously by the Governing Council, with the addition of a declaration proposed by Dr. Alberto P. Leon, vice-president of the APHA from Mexico, which declared that the APHA accepts with sympathy the idea of the establishment of a federation of societies of hygiene of the countries of the American continent to strengthen scientific cooperation between these countries for the benefit of the health of the peoples of the American nations.

In conformity with the directive of the Governing Council, Dr. Hugh R. Leavell, president of the American Public Health Association, has requested each affiliated society to nominate one person to a list from which five additional names have been chosen to represent affiliated societies on the expanded Reference Committee. Each of the two branches has been asked to nominate two or more representatives, from which list one representative from each branch has been added to the expanded Reference Committee.

As a result of this process the Reference Committee on Relationships with Affiliated Societies and Branches now consists of 14 persons, seven of them from the original membership and seven from the newly invited membership, all of whom have accepted. Their names are as follows:

Original membership:

MYRON E. WEGMAN, M.D., Washington, D. C., chairman
MARJORIE DELAVAN, Lansing, Mich.
ALEXANDER D. LANGMUIR, M.D., Atlanta, Ga.
WILLIAM P. SHEPARD, M.D., New York, N. Y.
J. EARL SMITH, M.D., St. Louis, Mo.
JAMES WATT, M.D., Bethesda, Md.
JOHN M. WHITNEY, M.D., Washington, D. C.

Newly invited membership:

J. ROBERT CAMERON, Denver, Colo.
ELIZABETH K. CASO, Boston, Mass.
MARION H. DOUGLAS, R.N., Hartford, Conn.
CARL L. ERHARDT, New York, N. Y.
ANDREW HEDMEC, M.D., New Orleans, La.
GERALD A. HEIDBREDER, M.D., Los Angeles, Calif.
L. J. PETERSON, M.S.P.H., Boise, Idaho

The 14 members of the committee come from 10 of the 13 sections of the Association and provide a representative regional distribution. They will hold a meeting in New York on February 15, from which it is expected there will emerge a report which can be brought to the attention of affiliated societies and branches and which will be transmitted to the Governing Council at the Eighty-Second Annual Meeting of the Association to be held in Buffalo, N. Y., the week of October 11, 1954.

APHA membership application blank on page XXVII

Employment Service

The following pages present information for those seeking public health personnel and for those seeking positions in public health.

This is a service of the Association conducted without expense to the employer or employee.

POSITIONS AVAILABLE

Medical Health Officer—for an established four-county health department in southwestern Colorado. Combined population 32,000; headquarters Durango. $10,500. Public health training and experience required. R. L. Cleere, M.D., Exec. Director, Colorado State Dept. of Public Health, Room 414, State Office Bldg., Denver 2, Colo.

Public Health Physician—as health officer for an established county health department of 32,000 in south central Illinois. $7,000–$9,000, plus travel allowance. C. H. Zoller, M.D., President, Board of Health, 403 N. Montgomery Ave., Litchfield, Ill.

Assistant Administrative Services Director—for large general hospital; two years' large hospital experience and M.H.A. (or equivalent) required; $6,480–$8,140. Personnel Officer, Philadelphia General Hospital (Northern Division) Front and Luzerne Sts., Philadelphia 40, Pa.

Director of Public Health—in established full-time county health department with staff of 12, including approved laboratory. Central California in Sierra foothills, population 45,000. $10,000, plus travel. Qualified M.D.; public health training preferred. Placer County Health Dept., 360 Elm St., Auburn, Calif.

Dental Operator—for Ohio school dental clinics. $5,200. Dr. E. Horace Jones, Dental Supervisor, Fourth and Ludlow Sts., Cincinnati, Ohio.

Sanitary Engineer—Direct program of environmental sanitation in county health department in central New York, Finger Lakes region. Degree in sanitary or public health engineering and four years' experience, or degree in civil or chemical engineering and six years' experience; licensed or eligible for license to practice professional engineering in New York State. Salary open. Robert H. Broad, M.D., Tompkins County Health Dept., 105 E. Seneca St., Ithaca, N. Y.

Superintendent of Sanitation—Public Health Department, Phoenix, Ariz. Experience in supervisory capacity directing sanitation inspection program and graduation from a four-year college or university with specialization in public health sanitation. $4,800–$6,000, starting rate dependent upon qualifications. Leroy J. Brenneman, Personnel Director, City Hall, Phoenix, Ariz.

Public Health Educator III—to direct health education program. $6,783–$8,520. M.P.H., four years' experience in educational work in organized health program, two of which were in supervision. Personnel Dept., City of Philadelphia, Room 127, City Hall, Philadelphia 7, Pa.

Public Health Statistician—Chief of the Bureau of Health Statistics, Honolulu. $6,400–$7,400. Six years' statistical experience with three years in supervisory capacity in a public health program; M.P.H. with emphasis on public health statistics, or an additional year of experience in a public health program. Richard K. C. Lee, M.D., President, Board of Health, P. O. Box 3378, Honolulu 1, Hawaii.

Commissioner of Health—for Roanoke, Va. A well-equipped, modern, new health center was occupied in November, 1951. Full public health program. Arthur S. Owens, City Manager, Roanoke, Va.

Public Health Nurse—Experience in public health nursing not essential but preferred. Inservice training, large city-county health department, salary $3,500–$4,000. Social Security coverage. Immediate appointment. Director, Kalamazoo City-County Health Dept., 241 W. South St., Kalamazoo, Mich.

Qualified Public Health Nurse—$3,600. Four weeks' vacation, plus one week at Christmas; agency owned cars. Private agency with school nursing program and family service which includes morbidity. Social Security and retirement. Northern Westchester District Nurse Association, 10 W. Hyatt, Mt. Kisco, N. Y.

Public Health Nursing Supervisor—Family health service, university affiliation. $3,700–$4,900, commensurate with preparation. Must meet minimum requirements of National League for Nursing. Director, Visiting Nurse Association, Newark, N. J.

Public Health Nurses and Maternal and Child Health Consultants—for state level positions. Consultative work, no supervisory responsibilities. Four years' responsible nursing experience. Bachelor's degree required; master's desirable. $394. A. T. Johnson, Personnel Director, Oregon State Board of Health, P. O. Box 231, Portland, Ore.

Public Health Nurses—$4,205–$4,955 and **Junior Public Health Nurses**—$3,795–$4,545. Mrs. J. P. Prescott, Director, Bureau of Public Health Nursing, Dept. of Public Health, 300 Indiana Ave., N.W., Washington 1, D. C.

Public Health Physician Director—for well staffed established county health department serving a community of 41,000 in southwestern Michigan. Public health training and experience preferred. $8,000 and adequate travel allowance. George Morris, Chairman, Van Buren County Health Dept., Paw Paw, Mich.

Physicians—with following specialties for Connecticut State Health Department—Local Health Consultant, $8,160–$10,680; Epidemiologist, Industrial Hygiene Physician, $7,320–$9,480; Crippled Children's Physician, Clinical Psychiatrist, $6,540–$8,340. Appointments above minimum based on qualifications. Glendon A. Scoboria, State Personnel Director, Room 405, State Office Bldg., Hartford, Conn.

Sanitary Engineer—required immediately by the Health Department of the City of Ottawa, Canada. Permanent position. Hospital and Medical Insurance plans available. State qualifications, experience, and salary expected to Secretary, Board of Health, Transportation Bldg., Ottawa, Ontario.

POSITIONS WANTED

Public Health Physician—in 40's; M.P.H.; Diplomate of American Board of Preventive Medicine. Experience in responsible posts in leading state and city departments of health and as executive director of a voluntary agency. Wishes responsible position, East. Has had teaching experience in medical schools on professional level. Write: **Box PH-43,** Employment Service, APHA.

Medical Nutritionist — M.D.; M.P.H. Background in internal medicine. Over four years' experience in public health and clinical nutrition; research and some teaching. Desires position directing a nutrition program either in a state, territorial, or municipal health department or within an industrial or research organization, in or outside the United States. Available July 1, 1954. Write: **Box N-5,** Employment Service, APHA.

Public Health Educator—M.P.H. Work, except thesis, completed for Ph.D. in public health. Director of university health education program for five years and director of school-community health education program; also with voluntary and official health agencies. Married, age 32. Desires position in voluntary or official health agency or in industry. Write: **Box HE-60,** Employment Service, APHA.

Free-lance Editor—with public health and medical experience. Material edited from rough draft and typed for publication; citations checked and completed; news bulletins arranged in desired format; proofreading of galleys against ms. or ms. against sources. Write: **Box M-11,** Employment Service, APHA.

Sanitary Engineer—11 years of diversified sanitary engineering and research experience, M.S. degree, desires position in East. Write **Box E. 25,** Employment Service, APHA.

All communications on the following advertisements should be sent to Burneice Larson, Medical Bureau, Palmolive Building, Chicago 11, Ill.

OPPORTUNITIES AVAILABLE

(a) Executive officer; state health department; newly created appointment; headquarters, university city. (b) County and city health administrator; college town, Midwest; minimum $10,000. (c) Director, metropolitan health program; Midwest. (d) Several medical officers; U. S. dependency. (e) Public health nursing consultants, supervisors, and staff nurses; state health department, reorganization program; West. (f) Public health nurse well qualified for teaching; state college; faculty rank; $5,000–$5,500. (g) Four staff nurses, two supervisors, county health department; Southern California. (h) Assistant supervisor, nursing service; state crippled children's service; headquarters university center. (i) Assistant or associate professor of statistics; $5,000–$6,000; opportunity to succeed head of department. (j) Regional director; community health organization; Midwest. (k) Sanitarian; county department serving population 500,000. Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

OPPORTUNITIES WANTED

(a) Public health physician; M.P.H., Johns Hopkins; five years, director, city health department (90 personnel). (b) Public health nursing administrator; M.P.H., eastern university; eight years' administrative experience, public health nursing. (c) Health educator; M.S., D.P.H.; five years, teaching; seven years, educator; state health department. (d) Sanitarian; B.S. (Major, Public Health), (Minor, Bacteriology); four years, sanitarian, state health department. (e) Statistician; Ph.D.; five years, on faculty department of public health, eastern university; two years, research statistician, leading health agency. Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

A Unique Rehabilitation Program

A leaflet announces, "A new rehabilitation program has been organized in Queens which offers a unique opportunity for the handicapped children and youth of that program." Total rehabilitation is described as "a complete program of study and analysis of what a handicapped child needs to realize his full potentialities, with a plan of treatment custom-tailored to fit each child."

The Queens office of the Association for the Aid of Crippled Children has initiated the program in which are being enlisted and coordinated "the active cooperation of persons, professions and agencies concerned with rehabilitation." Diagnosis and evaluation are being made at a diagnostic division located at Queens General Hospital. Treatment, agreed upon by a team of specialists, may be carried out at home, in the doctor's office, or in a hospital.

An essential part of the program is community education, both to support necessary services and to develop understanding of the handicapped child. The planning has been done jointly by the Association for the Aid of Crippled Children and the Queensboro Council for Social Welfare. In addition to rehabilitation of the individual, it is hoped to provide training opportunities for rehabilitation workers and to stimulate research in methods of prevention, early discovery, and care of handicapping conditions. Queens Rehabilitation Program, 90–50 Parsons Blvd., Jamaica, N. Y.

News from the Field

WHO News

Septic Tank Operation and Design

The treatment and disposal of domestic sewage from small groups of houses or from isolated dwellings was discussed at the Third WHO European Seminar for Sanitary Engineers, in London, October 27–November 1, 1952. A collection of some of the papers presented and a summary of the discussions have been published in a volume entitled, Design and Operation of Septic Tanks.

Among the topics dealt with in the report are the factors governing sewage treatment in small sewage plants; principles of design; effect of treatment of domestic sewage in small plants on the fecal bacteria counts compared with results in large-scale sewage works; and a comparative study of septic tanks of various types—one-chamber and multi-chamber, one-story and two-story. Consideration is of practices and results as found in Europe, particularly in Great Britain. A selected bibliography on septic tanks and similar small sewage treatment units is included.

A suggested use for the report is "to serve as a guide to local health departments, sanitary engineers, and others actively engaged in rural and urban sanitation in designing such units, and to national and provincial authorities who are considering revision of their regulations on sewage disposal." WHO Monograph Series No. 18, Columbia University Press, 2960 Broadway, New York 26; $1.50.

WHO Considers Mental Health

The third meeting of WHO's Expert Committee on Mental Health, November, 1952, devoted itself to the subject of the community mental hospital. Without suggesting a general ratio of beds to population, the report of this session suggests that a country that has fewer than one psychiatric bed per 10,000 of the population is unable to provide even the crudest level of emergency psychiatric inpatient care.

The chief emphasis of the report is on the "atmosphere" of a community mental hospital. Too many such hospitals "give the impression of an uneasy compromise between a general hospital and a prison," whereas its role should be that of a "therapeutic community." Among the recommendations made for creating an atmosphere favorable to the preservation of patients' individuality are the encouragement of good social behavior, assumption that a patient, like any other sick person, is trustworthy and capable of responsibility and initiative, a cottage-type of housing, and gradual restoration to community life.

Expert Committee on Mental Health, Third Report. WHO Technical Report Series No. 73, Columbia University Press, 2960 Broadway, New York 27; 25 cents.

Housing and Town Planning Course

Courses in principles and practices of housing and town and country planning have been added to the curriculum of the Institute of Public Administration set up by the Turkish government in Ankara in 1952 with United Nations Technical Assistance. The Swiss architect and town planner, Arnold E. Egli, is in charge of instruction. He is not only giving lectures but is helping to train local experts in modern technics of town and country planning, with special emphasis on those applicable to Turkey. Dr. Egli, who speaks Turkish,

has served as consultant and town planner in both Istanbul and Ankara and from 1927 to 1936 he was chief architect of the Turkish government's Ministery of National Education.

Adoption Has Mental Health Aspects

With the hope that it will lead to improvement in adoption procedures in Western society, the final report of a joint UN-WHO committee has been published by WHO as No. 70 of its Technical Report Series. The report deals mainly with the mental health aspects of adoption and outlines recommendations designed for the best mental health of the adopted child, as well as for his physical development. Columbia University Press, 2960 Broadway, New York 27; 15 cents.

WHO in a Nutshell

At 1953 year's end, the United Nations released a nine-page summary of the activities of WHO, one in a series of summaries on the activities of UN's specialized agencies. It describes the background of WHO, its advisory and coordinating services, and gives illustrations of activities in various regions of the world. This would be useful material for citizen groups interested in developing understanding and both official and voluntary support of WHO. Press Release H 1108, SA 154. United Nations Department of Public Information, Press and Publications Bureau, United Nations, N. Y.

An International Lasker Award

The International Society for the Welfare of Cripples and the Albert and Mary Lasker Foundation in New York City have established three Albert Lasker Awards for outstanding achievement in the development of services for the physically disabled. The purpose is to emphasize the importance of developing services for the disabled and to focus on international cooperation in making services available to the largest possible number of the world's disabled.

The awards will be made at each triennial meeting of the International Society, beginning with the Sixth World Congress to be held at The Hague, Netherlands, September 15, 1954. Recipients of the award will be selected from a list of nominees proposed by the affiliated national organizations of the society. Dr. Gudmund Harlem, chairman of the Norweigan Royal Commission for the Study of Rehabilitation Services, is chairman of the Awards Committee of experts, of which Leonard W. Mayo, director of the Association for the Aid of Crippled Children, New York City, is also a member. Each award consists of $500 and a silver statuette of the Winged Victory of Samothrace.

How Good Is the Polio Vaccine?

The National Foundation for Infantile Paralysis announces that starting in March or April it will undertake a nation-wide study to determine the effectiveness of a polio vaccine in preventing paralytic polio. In a gradually expanding program, between 500,000 and 1,000,000 second-grade school children in 200 counties of the United States will have been vaccinated in a nonepidemic period by the end of June, 1954. The results of the study will not be known until some time in 1955.

The vaccine to be used is that developed by Jonas E. Salk, M.D., at the University of Pittsburgh School of Medicine. Before use each batch will be triple tested, once by the pharmaceutical manufacturer, once by Dr. Salk, and once by the Biological Standards Division of the National Institutes of Health of the Public Health Service which licenses and controls the manufacture of biological preparations. Par-

ticipation of children is on a voluntary basis with the consent of the child's parents or guardians.

Counties for the study will be selected on the basis of:

1. High polio incidence for the past five years
2. High epidemic rate during June through September in these years
3. High attack rate in specific age group
4. Adequate health and education facilities
5. A significant cross-section as to socio-economic factors, geographic location, etc.

In each county selected, the local health officer will be in charge. Private physicians will administer the injections. Volunteers from NFIP's local chapters will help in organizing and manning the study in local areas with civic and community groups, medical societies, state and local health officers cooperating. A Committee of the Association of State and Territorial Health Officers to advise in planning the study consists of Drs. Herman E. Hilleboe, R. H. Hutcheson, and John D. Porterfield, state health officers, respectively, of New York, Tennessee, and Ohio.

Butler County Has a Three-Year Budget

Butler County, Pa., which has the first county health department to be established under the 1951 Pennsylvania law—"the first county to get a home rule county health unit into operation"—now has a three-year lease on life. In 1956 residents will vote by referendum whether to continue the department. Heretofore, the unit has been on a demonstration basis operated largely by the State Health Department. Recently, the county commissioners approved the department by resolution and a budget of $100,000 annually has been made available. It is anticipated that all municipalities in the county will receive public health services from the new county health department.

The annual budget of the department is made up of a $50,000 grant-in-aid from the State Health Department, $40,000 from the A. W. Mellon Educational and Charitable Trust, as part of a research and demonstration grant to the University of Pittsburgh School of Public Health, and a $10,000 appropriation by the County Board of Supervisors.

The Butler County Unit will be used both by the State Health Department and the School of Public Health as a major training center for professional and technical personnel. Intensive studies of the effectiveness and efficiency of public health methods, also financed by the Mellon Trust, will center in Butler County. Thus, the department will bear the same relation to the School of Public Health that a university teaching hospital bears to a medical school.

Robert Coker, Jr., M.D., formerly Alamance County, N. C., health officer, and for the past several years assistant director of the Bureau of Local Health Services in charge of the Section on School Health Coordinating Service in the North Carolina State Health Department, has been appointed health officer. He also has a faculty appointment at the School of Public Health.

A New Look at Family Problems

Testing methods of prevention and control of family problems is the purpose of a four-year, million dollar research project that has been undertaken by Community Research Associates, New York City. Following up its earlier study in St. Paul, which revealed that about 6 per cent of the population were absorbing more than half of all funds for public and voluntary health and welfare services, the group has chosen three American communities in which to carry on the new project. They are Hagerstown, Md., with a population of about 70,000 and in which the

famous sickness surveys of a generation ago were made, Winona City and County, Minn., with a population of about 40,000 and representing an agricultural community, and San Mateo, Calif., a new and fast-growing metropolitan county pushing 300,000. A six-month, try-out study in Winona has already borne out the St. Paul study.

Setting up "rates of disordered behavior" in families is a part of the new project. Five main categories of "rates" of breakdown will be gathered, evaluated, and interpreted—unsocial youthful behavior, unsocial family behavior, other antisocial adult behavior, maladjustment mortality, and a composite rate consisting of an unduplicated count of families and individuals involved in one or more of the categories making up the major rates. In all three areas specific and precise methods of coordinated procedures will be developed and perfected for use by every American community wishing to preserve its health and welfare services and also prevent problems that tend to destroy family life.

The project is supported jointly by the Grant Foundation of New York, the Hill Family Foundation of St. Paul, and the Rosenberg Foundation of San Francisco. It is under the general direction of Bradley Buell, head of Associates. The Hagerstown study is supervised by Roscoe Kandle, M.D., public health associate director for Community Research Associates and field director of the American Public Health Association.

Where Morbidity Data Can Be Found

The Clearinghouse on Current Morbidity Research Projects has issued its first listing of "Sources of Morbidity Data," Public Health Service Publication No. 332. The Clearinghouse was organized in 1952 under the auspices of the Public Health Conference on Records and Statistics. Its purpose is twofold—to provide systematic information as to where specific data on human morbidity may be secured and to provide a convenient means of bringing together those who have made or are planning morbidity studies.

In this first listing, made by the Public Health Service, 203 studies in 18 categories are listed. General Morbidity Results and Dental Caries and other Dental Conditions, with 62 and 40 studies, respectively, reported under way, are the two most numerous categories.

The Clearinghouse is under the direction of Theodore D. Woolsey, biostatistician in the Morbidity and Health Statistics Branch of the Division of Public Health Methods.

Appearing about the same time is another publication of the Public Health Service, "National Morbidity Reporting: Manual of Procedures, Effective January 1, 1954." This describes the system of morbidity reporting to the National Office of Vital Statistics now in operation in the background of both the normal and emergency need for such a reporting system. The manual is apparently available without charge from National Office of Vital Statistics, Public Health Service, Washington 25, D. C.

"Communicable Disease Control" in Finnish

The publication in Finland has been announced of a volume called "Tartuntatautien torjunta" which is an adaptation of the Seventh Edition of the APHA volume on "Control of Communicable Diseases in Man." The translation, made under the direction of Risto Patiala, M.D., university lecturer and epidemiologist of the State Medical Board in Helsinki, has been published by the Federation of Rural Communes, a semipublic body which has printed

4,000 copies. Half of these were sold shortly after publication.

This Finnish translation was published by permission of the American Public Health Association under its copyright. It supplements the current editions of this volume in Spanish, Portuguese, French, German, and Thai.

Industrial Hygiene Instrumentation

The Institute of Industrial Health and the School of Public Health, University of Michigan, will bring together, May 24–27, 1954, manufacturers and users of instruments for discussion of uses, limitations, advantages of and need for these tools in various industrial hygiene operations. The American Industrial Hygiene Association, the American Conference of Governmental Industrial Hygienists, and the Scientific Apparatus Makers Association are cosponsors of the symposium which will include an exhibit of instruments. Registration, $10.00; single day, $3.00. For information or registration write Director, Continued Education, School of Public Health, University of Michigan, Ann Arbor, Mich.

Food Service Demonstration Areas

The National Industry-Health Council on Food and Beverage Sanitation was organized recently at a meeting sponsored by the National Restaurant Association, the National Sanitation Foundation, and the Public Health Service. Consisting of representatives from both industry and official agencies, its purpose is "the development and promotion of agreed principles for the protection of health; and the voluntary coordination of the efforts of industry, health agencies, and the public in the betterment of food and beverage service and the environmental sanitation conditions surrounding such services in the home, at public and private establishments throughout the community." The immediate plans call for development of food service demonstration areas in several communities. Co-chairmen of the council are Cyril L. Kegler, chairman of the Public Health Committee of the National Restaurant Association; John D. Faulkner, chief, Milk and Food Branch, Public Health Service; and Walter F. Snyder, executive director, National Sanitation Foundation, Ann Arbor, Mich., who is also secretary of the council.

Social Welfare Assembly Meets

The federal grant-in-aid programs were extensively discussed at the annual meeting of the National Social Welfare Assembly in New York City, November 12–13. In one session Eveline M. Burns, economist and professor of social work, New York School of Social Work, pointed out that the relative economic status of the various states complicated a fair formula for determining grants. There is uncertainty "as to whether the objective is to equalize the position of the taxpayers in the various states or to assure a minimum standard of performance of any given welfare program." She called on social workers to affirm that "equalization of access to basic services and minimum of security is the major end." She further warned that moving away from categorical to "block" grants would require much closer citizen scrutiny of the actions of their legislatures if welfare standards were not to be reduced.

Among other subjects discussed was the redesigning of everyday equipment and situations to favor the declining faculties of older people. This was led off by Bernard Covner, of the engineering firm of Dunlap and Associates in an address on "Implications of Human Engineering for Older People."

Mrs. Douglas Horton, former head

of the WAVES and former president of Wellesley College, was elected to a third term as president of the assembly.

Another New York County Added

The Clinton County (N.Y.) Board of Supervisors has voted for and the State Health Department has approved the establishment of a Clinton County Health District, the necessary first step in setting up a county health department. The department began operation on January 1, 1954.

Clinton County with a population of about 55,000 is the 16th among the 57 upstate counties to establish a county health department. In addition, nine cities have organized health departments with full-time medical health officers. Thus nearly two-thirds of the 7,000,000 inhabitants of upstate New York have such organized service. The remaining one-third are served through 15 state service districts made up of from one to three counties, excluding their organized cities.

The State Health Department has announced that its main 1954 efforts in extending local health services will be devoted to counties of 100,000 or more population, of which there remain nine without local county health departments. In six of these the chief city already has a locally organized and operated health department.

1954 Unitarian Service Projects

The Unitarian Service Committee announces that for the seventh consecutive year a visiting team of medical scientists is being sent to Germany from the United States. The team will assist German scientists in organizing a series of symposia, lectures, and discussion groups. Three specialists each on hormones, brain surgery and psychosurgery, physiology and pharmacology of the kidney are members of the team.

Another project is a year's visiting professorship by Wesley T. Pommerenke, M.D., associate professor of obstetrics and gynecology, University of Rochester School of Medicine, who goes first to the American University in Beirut for a series of lectures and then to the Medical School of the University of Madras, India, and later to the Medical School of Keio University, Tokyo. In each of these two medical schools he will spend three months. Plans for the last half of the year are still in preparation.

Waste Water Reclamation

As an increasing number of areas in the United States become aware of the need for water conservation, means for the reclamation of waste water will receive greater attention. A recent report, "Field Investigation of Waste Water in Relation to Ground Water Pollution," of the California State Water Pollution Control Board discusses the possibility of reclaiming waste water to produce a usable water by returning the wastes to the soil. The Sanitary Engineering Laboratories of the University of California, Berkeley, made a study for the board, the primary purpose of which was to determine rates of percolation through different soils, penetration of the mineral and organic matter in the waste water, the degree of waste treatment required, and costs of spreading operations. The study indicates that a bacteriologically safe water is produced from settled sewage or final effluent if the liquid passes through at least four feet of soil; further that high percolation rates are dependent on a completely treated sewage effluent. A limited number of copies is available from the State Water Pollution Control Board, Room 610, 721 Capitol Avenue, Sacramento 14.

Hoover Medical Task Force Groups

The medical task force of the Commission on Federal Government Reorganization has been divided into four junior task forces, each with responsibility for a special area. The groups and their members are:

Armed Forces: Drs. E. D. Churchill, Michael DeBakey, Walter B. Martin, and Dwight L. Wilbur

Veterans Administration: Drs. Basil C. MacLean, Francis J. Braceland, Otto W. Brandhorst, and Evarts A. Graham

Public Health Service: Drs. Theodore G. Klump, Hugh R. Leavell, and Milton C. Winternitz

Civil Defense: Drs. Paul Hawley, Alan Gregg, and James Roscoe Miller

The chairman, Chauncey McCormick, and the research director, Edwin L. Crosby, M.D., will be consultants to each of the four divisions. James P. Dixon, M.D., on leave from his post as health officer of Philadelphia to serve as assistant director of the National Institutes of Health, has been detailed by the Institutes to act as permanent secretary of the medical task force.

Certifying Mental Hospital Heads

The American Psychiatric Association has created a committee to certify physicians as qualified mental hospital administrators. This committee will conduct examinations periodically and issue certificates to qualified applicants. For more than 100 years the association has maintained that executives of mental hospitals must be physicians specialized in psychiatry and must assume total responsibility for patients, since mental hospital operations bear a direct relation to a patient's therapeutic progress. The aim of the new certification program is to help insure that executives shall be not only skilled in psychiatry, but also in business and personnel management, community relations, budget control, procurement, and other administrative technics.

Chairman of the committee is Francis J. Braceland, M.D., of Hartford, Conn., who also serves on the Veterans Administration group of the medical task force, Commission on Federal Government Reorganization. The secretary is Dr. C. N. Baganz, manager, Veterans Administration Hospital, Lyons, N. J., from whom further information and certifying application forms may be obtained.

ABVPH Honorary Fellowships

The American Board of Veterinary Public Health awarded Honorary Fellowships to Dr. Jean Verge of the Alfort Veterinary College, Alfort, France, and Dr. Karl F. Meyer of George Williams Hooper Foundation, San Francisco, for outstanding contributions to veterinary public health. The Honorary Fellowship was also awarded to Brigadier General Wayne C. Kester, chief of the U. S. Air Force Veterinary Corps, in recognition of his continuing efforts in behalf of veterinary public health and the promotion of this specialty among the personnel in his command by encouraging graduate training and other means. The awards were made during the 15th International Veterinary Congress recently held in Stockholm, Sweden.

Fluoridation in Foreign Cities

Two European cities and one South American community are now adding fluoride ions to their local water supplies, according to reports received by the American Dental Association. The European cities are Norrkoping, Sweden, and the Wallershausen quarter of Kassel, Germany. Girardot, Colombia, is believed to be the first South American city to place fluoridation in operation. Three other South American cities—Curico, Chile, and Araraquara

and Bauxo Guandu, Brazil—have approved the measure and are expected to begin adding fluoridating water supplies shortly.

AAMSW Officers

The following officers of the American Association of Medical Social Workers have been elected by its Executive Committee:

President—Pauline Ryman, director of social service, Strong Memorial Hospital, Rochester, N. Y.

First Vice-President—Doris Siegel, director of social service, Mount Sinai Hospital, New York, N. Y.

Second Vice-President—Mary M. Lewis, director of social service, Washington University Clinics and Allied Hospitals, St. Louis, Mo.

PERSONALS

LEONA BAUMGARTNER, M.D.,* since June, 1953, executive director of the New York Foundation and previously assistant commissioner in charge of maternal and child health services, has been appointed health commissioner of New York City, the first woman to be appointed to this position in the city. She succeeds JOHN F. MAHONEY, M.D.,* who remains in the department as director of the Bureau of Laboratories.

VIRGINIA BREAKS,† chief, Reports Section, Bureau of Records and Statistics, California State Health Department, is on a two-year assignment as public health records analyst and statistician, Office of the High Commissioner of the Trust Territory of the Pacific Islands, under administration by the Department of the Interior, with quarters at Truk, Micronesia.

STERLING B. BRINKLEY, M.D.,† medical administrator, United Mine Workers Welfare and Retirement Fund, Johnstown (Pa.) district, has been named medical superintendent, Gaylord Farms Tuberculosis Sanatorium, Wallingford, Conn., succeeding DAVID RUSSELL LYMAN, M.D., first head of the institution, who has completed 50 years of service.

SAMUEL M. BROWNELL, president, New Haven (Conn.) State Teachers College and professor of education administration, Yale University Graduate School, has been named commissioner of education, U. S. Department of Health, Education and Welfare, succeeding the late LEE M. THURSTON.

RAY K. BROWN, M.D., has been appointed assistant director in charge of the Antitoxin, Serum, and Vaccine Laboratories, Division of Laboratories and Research, New York State Department of Health, Albany.

THERON H. BUTTERWORTH, Ph.D.,* health educator, Education of the Public Section, WHO, Geneva, has been assigned as adviser in public health education to the WHO Regional Office for Southeast India, New Delhi, until May 1, 1954.

SARAH A. BUTTS, former chief social worker, Veterans Administration Hospital, Bronx, New York City, is now medical social work consultant, National Society for the Prevention of Blindness.

MARY STEICHEN CALDERONE, M.D.,* recently a school physician in Great Neck, Long Island, is now medical director, Planned Parenthood Federation of America, New York, N. Y.

FRANK J. CONDON, M.D.,* former medical officer in charge, U. S. Quarantine Station, Detroit, has been appointed deputy director, Oakland County (Mich.) Health Department in charge of the Royal Oak office.

A. C. CURTIS, M.D., director, Division of Tuberculosis Control, Arkansas State Health Department, has been assigned as an officer of the Public Health Service to a two-year term of duty at Jimma, Ethiopia. CLIFFORD H. COLE, M.D., director, Division of Venereal Disease Control, will act also as the director of the Division of Tuberculosis Control during Dr. Curtis' absence.

RUTH DASSEL,† supervisor, Columbus (Ohio) Health Department laboratory since 1948, has a new public health laboratory position in San Diego, Calif.

MELVIN ROGER DAVIS, M.P.H.,† has been appointed director of the Prevention and Control Center of the Oklahoma State Department of Health, Oklahoma City.

STANLEY E. DORST, M.D., dean, College of Medicine, University of Cincinnati, was recently installed president, American Association of Medical Colleges.

JOHN E. EICHENLAUB, M.D., has been appointed professor of hygiene, University of Illinois, Champaign.

ALBERT GEORGE ENGELBACH, M.D.,† formerly with the Federal Civil Defense Administration in the Casualty Services, Health and Special Weapons Defense Office, Washington, D. C., has been appointed regional medical consultant, National Foundation for Infantile Paralysis in Texas, Louisiana, Arkansas, Missouri and Oklahoma, with offices in Dallas, Tex.

* Fellow.
† Member.

ODOM FANNING,† former scientific information officer, Public Health Service Communicable Disease Center, has been appointed head of publications services, Georgia Tech Engineering Experiment Station, Atlanta, and also editor, The Research Engineer, quarterly scientific journal of the station.

ELIZABETH A. FELDHUSEN and GENEVIEVE LEBENDIGER were recently appointed assistant district supervising nurses, New York State Health Department, assigned respectively to the Glens Falls and Rochester districts.

FLORENCE BELLI FIORI, formerly program consultant, New Jersey Heart Association, is now district consultant in community health organization, New Jersey State Department of Health, Metropolitan State Health District, Newark.

JOSE LIMA PEDREIRA DE FREITAS, M.P.H., has become adjunct professor of parasitology, Faculty of Medicine at Ribeira Preto, Brazil.

IRIAL GOGAN, M.B., D.P.H., of Dublin, Ireland, was recently appointed regional medical health officer in charge of Saskatchewan's newest public health unit, the Regina Rural Health Region, Canada.

HELEN GRACE GOODWIN, formerly with the U. S. Public Health Service serving in New Hampshire, Pennsylvania, and Connecticut, was recently appointed dental consultant, Division of Dental Health, Kentucky State Department of Health, Louisville.

JOHN B. HALL, JR., M.D.,* director, Cook County Department of Public Health, has been appointed clinical assistant professor of pediatrics, University of Illinois College of Medicine, Chicago.

PAUL R. HAWLEY, M.D.,† director, American College of Surgeons, Chicago, was recently appointed by Governor Stratton a member of the Illinois Board of Public Welfare Commissioners.

MARY L. HEMMY,† formerly social service director, University Hospitals, University of Illinois Medical School, Chicago, has been made executive director, American Association of Medical Social Workers, Washington, D. C.

WILLIAM A. HOPPER,† formerly with the Atlantic Visiting Nurse and Tuberculosis Association in Atlantic City, has been appointed administrative secretary, Division of Chronic Illness Control, New Jersey State Department of Health, Trenton.

HOWARD E. HOUGH,† formerly with the Cook County Department of Public Health, has been appointed acting chief, Bureau of Health Education, Illinois Department of Public Health, Springfield, succeeding MARGARET B. COWDIN,† retired.

HUGH H. HUSSEY, M.D., since 1941 assistant professor, has been appointed head of the Department of Preventive Medicine and Public Health, Georgetown University School of Medicine, Washington, D. C.

PHILIP H. ISACCO, M.D., JAMES O. NALL, M.D., and JAMES A. O'BRIEN, M.D., have been appointed regional medical consultants for the Division of Local Health Services, Kentucky State Health Department, to work with medical groups, hold preschool, well child and other clinics, and conduct special programs at strategic points in the state and to confer with local health officers on the improvement of preventive medical services.

MORRIS A. JACOBS, M.D.,† has been appointed senior general medical superintendent, New York City Department of Hospitals, and director of its Bureau of Medical and Hospital Services, succeeding I. HERBERT SCHEFFER, M.D.,† resigned to become executive director of Miriam Hospital, Providence, R. I.

E. ROSS JENNEY, M.D.,† has been transferred from the International Health Division, Public Health Service, to chief of field party, The Institute of Inter-American Affairs, Department of State, with headquarters in Santiago, Chile.

J. A. KATZIVE, M.D.,† director, Health Services Division, United Auto Workers-CIO, Detroit, has resigned to become executive director, Maimonides Hospital, Brooklyn, N. Y.

M. ELIZABETH KNOWLES,† has been appointed to the Bureau of Tuberculosis Control, Pennsylvania State Health Department, Harrisburg, to establish and supervise social service programs in state tuberculosis hospitals.

ARMINA KOLMER, former staff member, University of Chicago Clinic, is now institutional nutrition consultant, Oklahoma State Department of Health, Oklahoma City.

WALTER C. LEVY, M.D.,* former district health officer, Syracuse District Office of the department, has been appointed principal public health physician, Division of Local Health Services, New York State Department of Health.

FRITZ LIPMANN, M.D., Ph.D., professor of biological chemistry, Harvard Medical School and biochemist-head, Biochemical Research Laboratory, Massachusetts General Hospital, Boston, shares with Hans Krebs, M.D., of Sheffield, England, a 1953 Nobel Prize in Medicine for a study of biosynthesis

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* Fellow.
† Member.

mechanisms. He is the sixth Nobel Prize winner of the Harvard faculty.

LEVITTE MENDEL,* former San Jose (Calif.) chief health educator, is now director of health education, Denver Department of Health and Hospitals, Colo.

THOMAS PARRAN, M.D.,* dean, Graduate School of Public Health, University of Pittsburgh, was elected president of the National Citizens Committee for the World Health Organization at its first annual meeting in New York in November.

RAPHAEL O. PATT, M.D., formerly with the medical department of the Endicott Johnson Corporation, Johnson City (N.Y.), has been named an assistant medical director, American Heart Association, New York City.

ROBERT E. PATTON,† former biostatistician in the State Department of Health, has been appointed associate statistician, Bureau of Statistics, New York State Department of Mental Hygiene, Albany.

J. R. PORTER, Ph.D.,† chairman, Department of Bacteriology, State University of Iowa College of Medicine, has been appointed chairman of the Office of Naval Research Panel for Microbiology which has under supervision nearly 90 contracts with 52 universities in 29 states, dealing with "fundamental aspects of problems important to the navy and to the nation's defense."

MARGUERITE J. QUENEAU,* associate public health nutritionist, Bureau of Nutrition, New York State Department of Health, Albany, has been awarded a Fulbright teaching fellowship and granted a year's leave of absence.

ADA CHREE REID, M.D.,* retiring editor of the Journal of the American Medical Women's Association, New York City, has been presented a citation by the association in appreciation of her outstanding service to the journal and to the advancement of the interests of the association.

LEONARD A. SCHEELE,* Surgeon General of the Public Health Service and new president of the Association of Military Surgeons of the United States, was installed at the recent 60th annual convention of the association in Washington, D. C.

HARVEY SCHOENFELD,† assistant director of Montefiore Hospital, New York City, since 1951, has been appointed director of the Barnert Memorial Hospital, Paterson, N. J.

AL SHAPLOWSKI, M.P.H., has been appointed director of the new home accident prevention program of the Kansas State Health Department, Topeka, a program made possible by a grant from the W. K. Kellogg Foundation.

BEN SILSBEE, M.P.H.,† former health educator, New York State Department of Health, is now assistant secretary, Public Health Federation of Cincinnati, Ohio.

DEAN FRANKLIN SMILEY, M.D.,* secretary, Association of American Medical Colleges, was awarded a Fellowship in the American Medical Writers' Association at its recent tenth annual meeting in Springfield, Ill.

JOHN T. SMILEY, M.D.,† former chief of Local Health Administration, Minnesota State Health Department, is now a resident in internal medicine, Veterans Hospital, Minneapolis.

DAVID J. SMITH, D.D.S., formerly engaged in bacteriological and biochemical research at Columbia University, has been appointed associate research dentist, Bureau of Dental Health, New York State Department of Health, Albany, primarily to carry on a program of laboratory and epidemiological research relating to dental health.

RALPH J. VAN DERWERKER,* has been detailed by the U. S. Public Health Service to the U. S. Coast Guard, rather than resigned as reported in December, 1953, A.J.P.H.

JEROME VAN GASSE, M.D., is now director, Jackson City (Mich.) Health Department.

F. EUGENIA WHITEHEAD, D.Sc.,* previously conducting research in nutrition education in the Kansas City (Mo.) public schools, has been appointed director of nutrition education, National Dairy Council, Chicago, Ill.

JACOB M. WISAN, D.D.S.,* formerly chief, Research and Education Division, Veterans Administration Dental Service, is now chief of the Dental Health Section, Philadelphia Public Health Department, Pa.

DUDLEY A. WHITE, publisher of newspapers in Sandusky and Norwalk, Ohio, and president of the Sandusky Broadcasting Company, has been made executive director, U. S. Commission on Intergovernmental Relations.

ROBERT H. WOLLE, district industrial hygiene engineer, East Tennessee District, Tennessee Department of Health, is on leave at the Graduate School of Public Health, University of Pittsburgh, Pa., where he will work toward the master of public health degree, majoring in occupational health.

DEATHS

WHITCOMB ALLEN, regional representative for American Social Hygiene Association, San Antonio, Tex., December 7, 1953.

DWIGHT ANDERSON, LL.B., former director of public relations for the Medical Society of

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* Fellow.
† Member.

the State of New York, and its executive secretary from 1945 until his retirement in 1950, on December 13, 1953.

CHARLES V. CRASTER, M.D., D.P.H.,* in December, 1953 (Health Officers Section).

ROBERT L. DENORMANDIE, M.D.,† April 20, 1953 (Medical Care Section).

JOHN W. DUGGER, M.D.,* director of industrial hygiene, Mississippi State Board of Health, on June 2, 1953 (Industrial Hygiene Section).

THOMAS G. ENGLISH,† of Pittsburgh, Pa. (Engineering Section).

WILLIAM FRADEN, M.D., M.P.H.,† school physician, New York City Department of Health (School Health Section).

J. J. GOLUB, M.D.,† associated with the Hospital for Joint Diseases, New York, N. Y. (Medical Care Section).

CHARLES NEWBERGER, M.D.,† consultant in maternity, Maternal and Child Health Division, Illinois State Department of Health, on September 25, 1953 (Maternal and Child Health Section).

HOWARD N. OLD,† sanitary engineer consultant (USPHS), Branch of Health, Bureau of Indian Affairs, Department of the Interior, Washington, D. C. (Engineering Section).

CRIT PHARRIS, M.D.,* assistant medical director, United Aircraft Corp., East Hartford, Conn., on July 30, 1953 (Industrial Hygiene Section).

WILLIAM H. RUMBEL, D.D.S., M.P.H.,* director, Bureau of Dental Health, Virginia Department of Health, on November 13, 1953 (Dental Health Section).

LLEWELYN I. THOMAS, M.D.,† venereal disease control officer, Akron (Ohio) City Health Department, on November 10, 1953 (Health Officers Section).

PHILIP W. WOODS, D.D.S., M.P.H.,* dental consultant, United Mine Workers Association Welfare and Retirement Fund, Washington, D. C., suddenly on December 8, 1953, when in Seattle, Wash., on a field trip (Medical Care Section).

CONFERENCES AND DATES

American Public Health Association. Headquarters: Memorial Auditorium, Buffalo, N. Y. October 11–15.

State and Regional Public Health Meetings:

Arizona Public Health Association. Santa Rita Hotel, Tucson. April 29–May 1.

Cuban Public Health Society. Finlay Institute, Havana. April 24–25.

Georgia Public Health Association. DeSoto Hotel, Savannah. May 3–5.

Idaho Public Health Association. Shore Lodge Hotel, McCall. May 7–8.

Illinois Public Health Association. St. Nicholas Hotel, Springfield. April 1–2.

Iowa Public Health Association. Fort Des Moines Hotel, Des Moines. April 8–9.

Kansas Public Health Association. Hotel Lassen, Wichita. March 29–31.

Louisiana Association of Public Health Workers. Virginia Hotel, Monroe. April 8–9.

Massachusetts Public Health Association. University of Massachusetts, Amherst. June 17.

Michigan Public Health Association. Detroit. May 5–7.

Middle States Public Health Association. Hotels St. Paul and Lowry, St. Paul, Minn. June 2–4.

Minnesota Public Health Conference (with Middle States Public Health Association). June 2–4.

Missouri Public Health Association. Hotel Robidoux, St. Joseph. May 6–8.

New Mexico Public Health Association. Albuquerque. April 4–6.

New York State Public Health Association. Lake Placid Club, Lake Placid. June 7–10.

Puerto Rico Public Health Association. Caribe Hilton Hotel, San Juan. February 2–6.

South Carolina Public Health Association. Ocean Forest Hotel, Myrtle Beach. May 27–29.

Southern Branch, APHA. Soreno Hotel, St. Petersburg, Fla. April 22–24.

Tennessee Public Health Association. Andrew Jackson Hotel, Nashville. May 13–15.

Texas Public Health Association. Galveston. February 14–17.

United States-Mexico Border Public Health Association. Albuquerque, N. M. April 7–9.

Washington State Public Health Association (with Western Branch, APHA). May 9–12.

Western Branch, APHA. Olympic Hotel, Seattle, Wash. May 9–12.

Meetings of Other Organizations Coming in February, March, and April:

American Academy of Political and Social Science. Benjamin Franklin Hotel, Philadelphia, Pa. April 2–3.

* Fellow.
† Member.

American Association of Health, Education and Recreation. New York, N. Y. April 18–23.

American Camping Association. New York N. Y. February 2–6.

American Heart Association. Conrad Hilton Hotel, Chicago, Ill. April 1–2.

American Medical Association—National Conference on Rural Health. Baker Hotel, Dallas, Texas. March 4–6.

American Nurses' Association. Chicago, Ill. April 26–30.

American Society for Public Administration. Conrad Hilton Hotel, Chicago, Ill. March 19–21.

Child Study Association of America. Annual Conference. New York, N. Y. March 1–2.

Commission on Chronic Illness. National Conference on Care of the Long-Time Patient. Chicago, Ill. March 18–20.

Industrial Medical Association. Hotel Sherman, Chicago, Ill. April 26–30.

National Committee on the Aging, NSWA. Conference on Methods of Establishing and Maintaining Standards in Institutions for Older People. Baltimore, Md. February 19–22.

National Conference on Trichinosis (Second). Auditorium, American Medical Association, Chicago, Ill. March 1.

National Health Council. Hotel Statler, New York, N. Y. March 24–26.

National Multiple Sclerosis Society. Annual Meeting. New York, N. Y. March 9 (tentative).

National Society for Medical Research. Annual Meeting. Chicago, Ill. February 7.

National Society for the Prevention of Blindness. Hotel Jefferson, St. Louis, Mo. March 10–12.

Public Health Conference on Records and Statistics. Fifth National Meeting. Washington, D. C. March 22–26.

Specialists

Most of the readers of this Journal are entitled to be termed "specialists" in some branch of public health or environmental sanitation.

It is generally conceded that the formulation and compounding of detergents, bactericides, and insecticides is also a specialty. *But it is rarely realized and seldom acknowledged that the effective application and use of these products should also be regarded as a specialty.*

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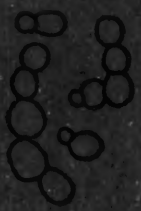

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